

DECEMBER, 1951

APR 1 1952

Commercial Refrigeration

AND AIR CONDITIONING

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How to prevent damage to cold room insulation

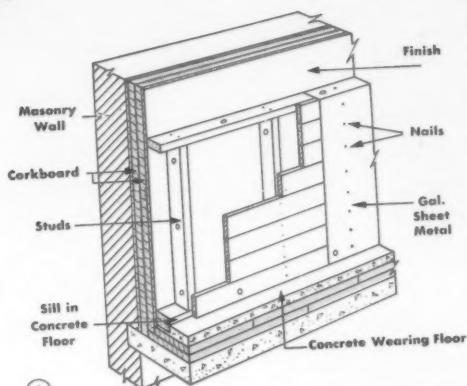
In cold rooms, wheeled trucks and crates or barrels often break the finish and damage the wall insulation. In addition to its unsightly appearance, this condition speeds deterioration of the insulation — results in loss of efficiency and rising refrigeration costs. By protecting the insulation you install from damage, you save your customer money both on refrigeration and on repair bills and at the same time build your reputation for good workmanship. Illustrated here are three ways to guard insulation against damage. They can be employed in the original construction or can be added to existing installations.

(A) shows a free-standing bump rail covered with galvanized sheet metal. The 2 x 4 studs rest on a 2 x 4 sill set in the concrete wearing floor. The studs are anchored at the bottom by a 2 x 4 blocking cut to length and wedged between each stud. Another 2 x 4 across the top of the studs adds rigidity to the structure. Tongue-and-groove sheathing is nailed to this framework and covered with sheet metal. Holes drilled through the metal and sheathing provide air circulation between the studs.

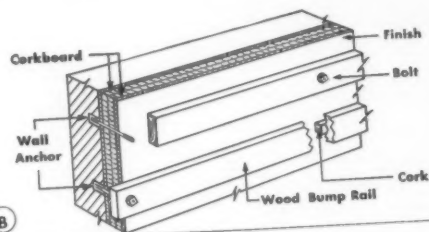
(B) shows a bump rail construction with horizontal rails anchored by bolts through the insulation and into the wall. A 2" piece of corkboard, coated with asphalt or emulsion, is slipped over each bolt and the rail. The cork serves as a shock absorber and minimizes frosting on the bolts. Since bolts pierce the insulation, this method is recommended only for moderate-temperature rooms.

(C) pictures a protective wainscoting of portland cement plaster for refrigerated rooms which have been finished with asphalt emulsion. As a key for holding the plaster, expanded metal lath is stapled over the emulsion finish, then topped with a cap strip. The plaster is trowelled on in two coats to a 3/4" thickness and protects the less durable emulsion underneath. However, where service conditions are severe, install bump rails.

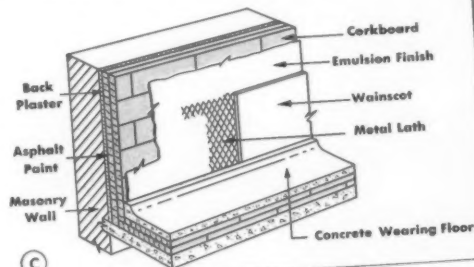
To do a longer lasting insulation job, protect the insulation where necessary, but first



(A)



(B)



(C)

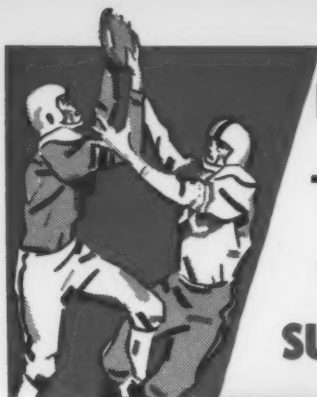
be sure that the insulation is Armstrong's Corkboard. Corkboard is moisture resistant, offers high insulating efficiency, and is easily handled. You can cut it to form clean, sharp edges so you get tight, neat joints. It will not shrink, swell, warp, or harbor vermin. These features mean trouble-free service for your customers—more satisfied customers for you.

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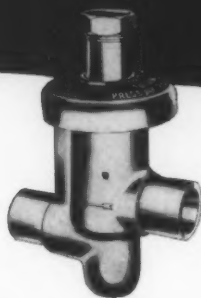
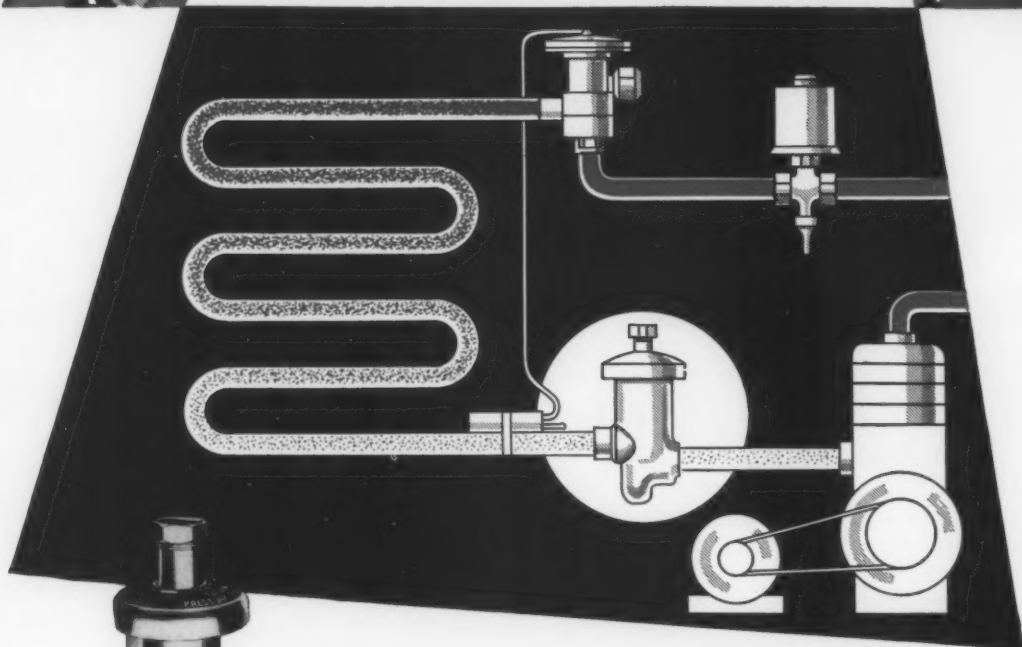


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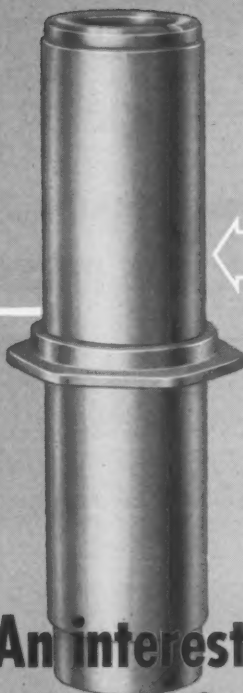
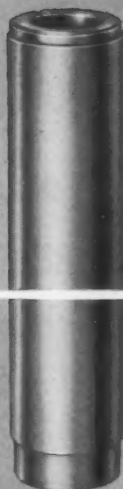
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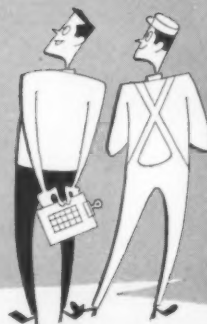
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DECEMBER, 1951

VOLUME 8, No. 12

Commercial Refrigeration

AND AIR CONDITIONING

Established 1944 as
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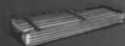
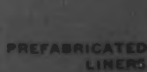


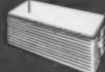
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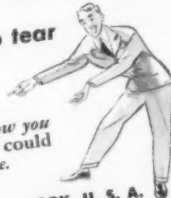
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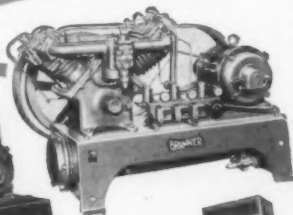
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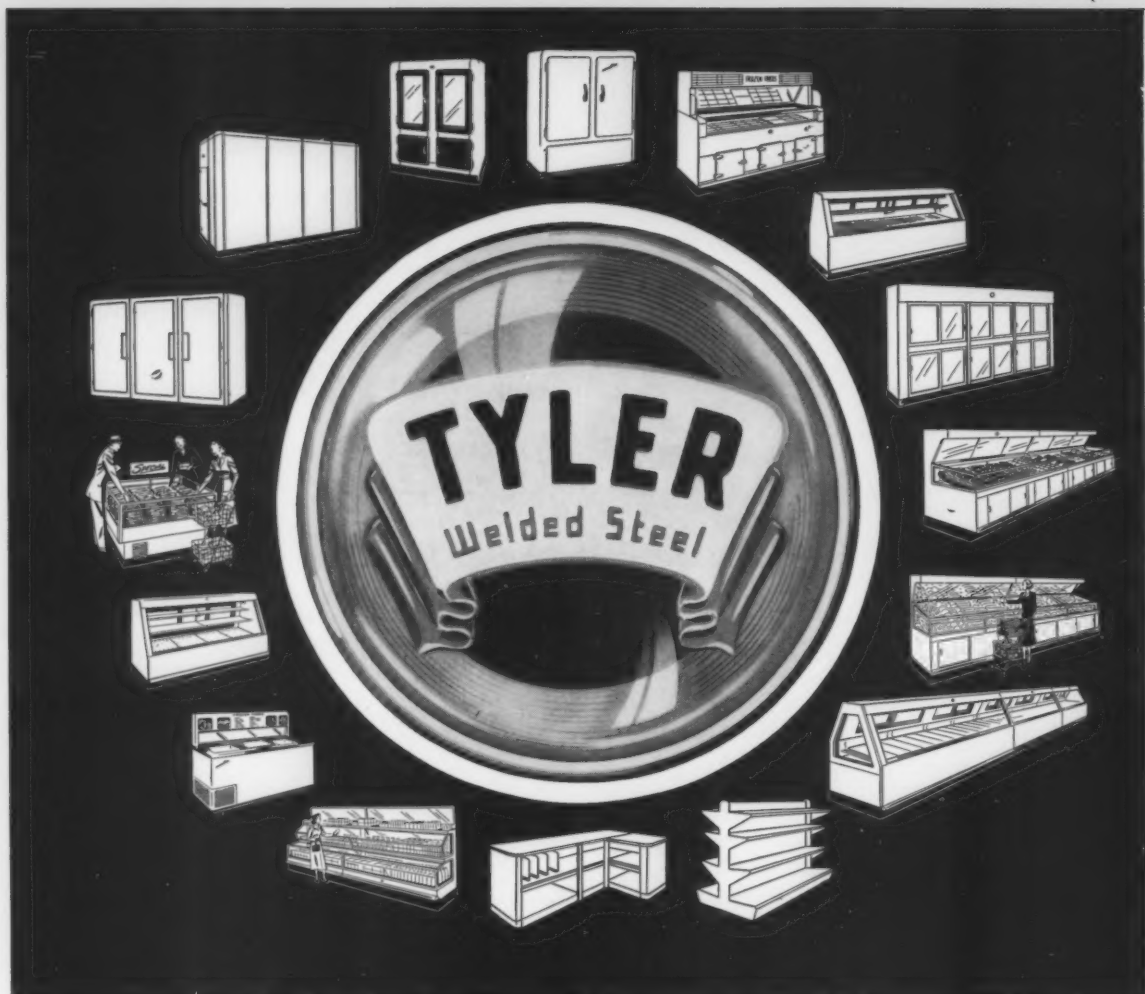
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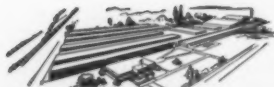


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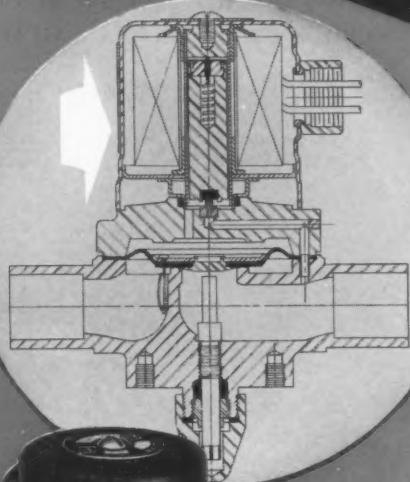
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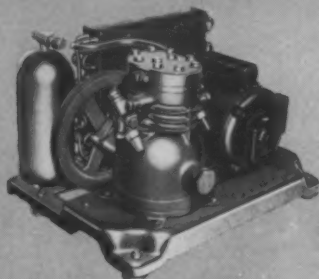
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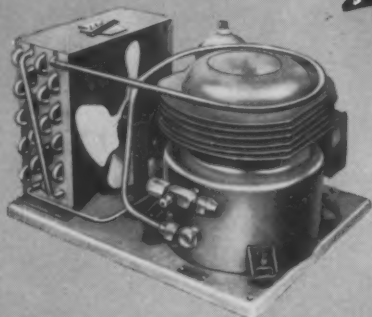
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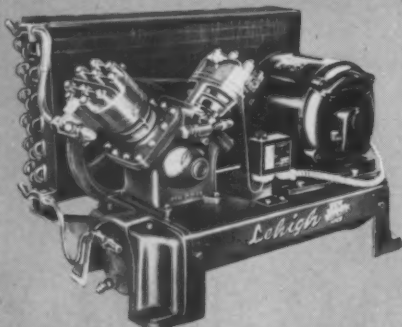
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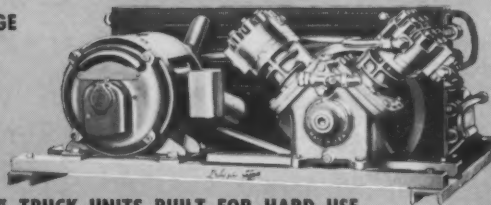


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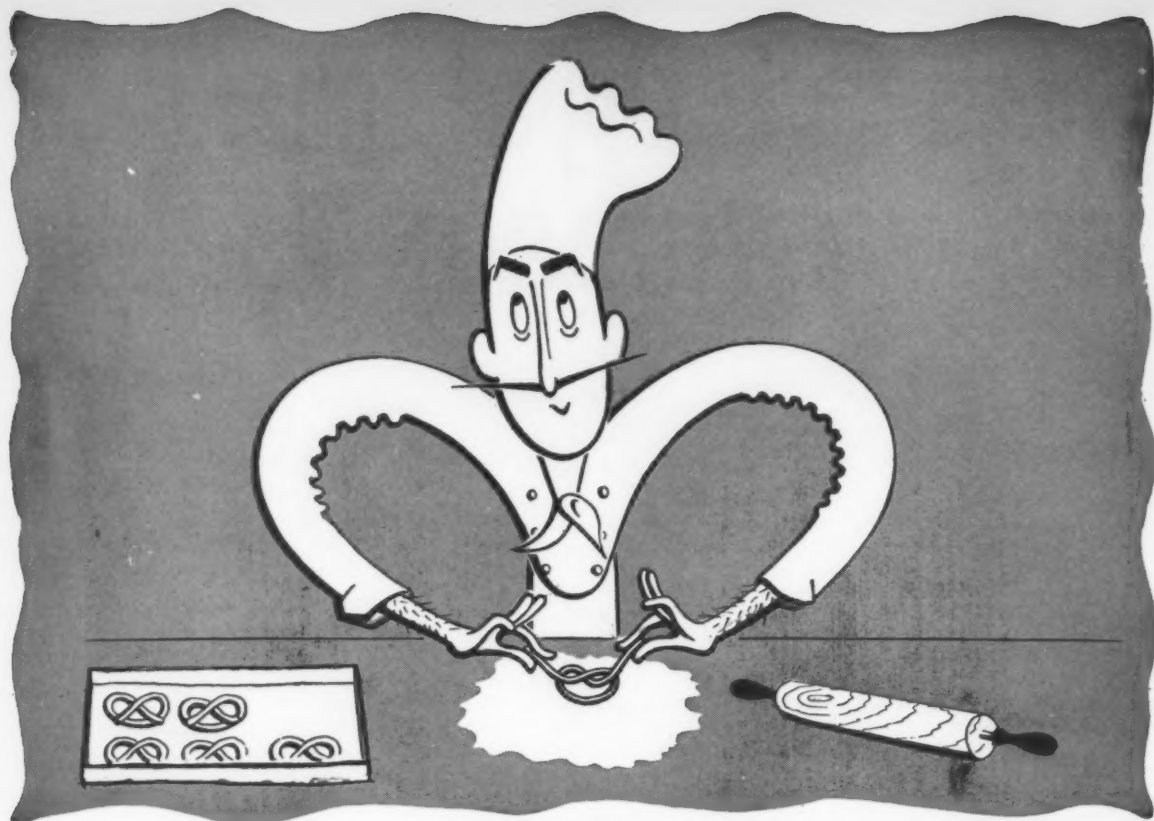
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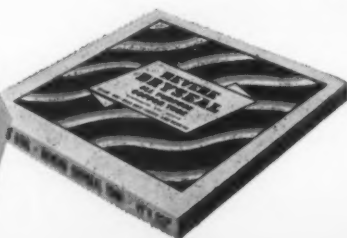
● There's nothing to bending dead-soft Dryseal. No special tools . . . in fact no tools at all, are needed. Simply bend it by hand. The soft temper of the copper used and its ductility are the reasons why Dryseal will not give you any trouble by splitting when it is flared for compression fittings.

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DECEMBER, 1951 • COMMERCIAL REFRIGERATION



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against rain, snow, sleet and ice for outdoor installations.

- 3 Totally Enclosed Fan Cooled Motor**—protects against dusts, mist or fog that might be detrimental to the vital parts of the motor. The inner frame protecting the motor is sealed to keep out harmful matter.
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**with McINTIRE
DC FILTER DRIERS**

- at capillary tubes
- in expansion valves
- in windings of hermetics
- in crankcase oil
- in the receiver
- in hot gas defrosting

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Get the full story in our new booklet "Deep Drying", available at your wholesaler—or by writing us.

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on All installations

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*right
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smooth-running
motors

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design

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models for low or medium
temperature applications

SERVEL'S 5-YEAR* FACTORY WARRANTY

**and nation-wide net-
work of authorized
wholesale suppliers**

MAKE a "GOOD DEAL" for fixture dealers and service engineers. The Warranty is a great selling point. It assures customer satisfaction. See your Servel wholesaler for all of your installation and maintenance requirements. Ask for new sales literature and free service instructions.

* Available on steel-case models up to 1 HP
Larger models warranted 1 full year

*. . . and you'll see why
Servel gives you*

- ★ **LONGER LIFE**
- ★ **GREATER ECONOMY**
- ★ **MORE DEPENDABILITY**

Where else can you find such a combination of tried and proved advantages? Each is in itself a highly desirable feature. Together they combine to give you today's most economical, dependable and smoothest-performing electric condensing units for every commercial refrigeration requirement from 1/4 HP to 3 HP.

SERVEL, Inc., Electric Refrigeration Division, EVANSVILLE 20, INDIANA

Always Look for the Yellow and Black **DETROIT** Boxes—the Sure Sign of a Good Refrigeration Wholesaler!

How do you tell a good refrigeration wholesaler—by his courtesy, by his speed in filling orders, by his ability to supply you with the product you want when you want it? These are all good points, but more important is the quality of the products he sells. And when a wholesaler stocks and sells **DETROIT** products, you know he stocks and sells the best. That's because all **DETROIT** Expansion Valves, Solenoid Valves and Controls are built for dependable, economical performance—to supply your customers with long years of reliable trouble-free performance. So always look for the familiar yellow and black **DETROIT** boxes on the shelf—the sure sign of a good refrigeration wholesaler!



DETROIT'S PLAN-

Now Selling Both Your Independent and Chain Store Customers!

DETROIT'S successful, hard-hitting plan plugging periodic service checkups now gives you the additional benefit of big, profitable chain store coverage—a rich refrigeration conscious market! In addition, full page **DETROIT** advertising will continue to stress the importance of proper refrigeration maintenance to your customers in the independent grocery, meat, restaurant, dairy and ice cream fields. It's a powerful plan-building new business for refrigeration servicemen everywhere!

ASK YOUR **DETROIT** WHOLESALE FOR YOUR
SUPPLY OF "INDUSTRY SLOGAN STICKERS!"



DETROIT

LUBRICATOR COMPANY

5900 TRUMBULL AVENUE, DETROIT 8, MICHIGAN
DIVISION OF **AMERICAN RADIATOR & Standard Sanitary CORPORATION**
CANADIAN REPRESENTATIVES: Railway & Engineering
Specialties, Ltd.—Montreal, Toronto, Winnipeg
EXPORT DEPARTMENT—Box 218 Ridgely, New Jersey



**DETROIT HEATING AND REFRIGERATION CONTROLS • ENGINE
SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER EQUIP-
MENT • DETROIT EXPANSION VALVES AND REFRIGERATION
ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS**

Serving Home and Industry. AMERICAN STANDARD • AMERICAN BLOWER • CHURCH MATE • DETROIT LUBRICATOR • KEMMER ROGERS • ROSS HEATER • TONAWANDA IRON

Circle No. 15 on Reader Service Card for more information
and AIR CONDITIONING • DECEMBER, 1951

THE BEST-KNOWN
NAME IN
REFRIGERANTS

.....



ANSUL

...the symbol of quality and
service for nearly 40 years

ANSUL WHOLESALERS are ready and equipped to render an intelligent, co-operative service to refrigeration service engineers on problems which arise, from time-to-time, in the operation of refrigerating systems.

Ansul has greatly increased its Research facilities — expanded its Research Program — and added new modern Pilot Plant facilities to better serve the Refrigeration Industry.



ANSUL REFRIGERANTS are the undisputed quality standards of the Refrigeration Industry . . . and this enviable recognition is protected and maintained by strict laboratory control of every step in the manufacture of Ansul Sulfur Dioxide and Ansul Methyl Chloride.

Every cylinder of Ansul refrigerants is individually analyzed and carefully inspected to safeguard the rigid standards of purity and dryness and to insure maximum safety in handling.

For more than a *third of a century*, Ansul has both pioneered and led the field in the production of sulfur dioxide for refrigeration purposes. . . . Ansul methyl chloride has gained universal recognition in the industry for its unsurpassed quality.

ANSUL

CHEMICAL COMPANY
REFRIGERATION DIVISION

MARINETTE, WISCONSIN

ANSUL SULFUR DIOXIDE • ANSUL METHYL CHLORIDE
ANSUL OIL • KINETIC "FREON" REFRIGERANTS • ALSO MANUFACTURERS OF INDUSTRIAL CHEMICALS • DRY CHEMICAL FIRE EXTINGUISHERS

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DECEMBER, 1951 • COMMERCIAL REFRIGERATION



CONDENSING UNITS AND RENEWAL PARTS



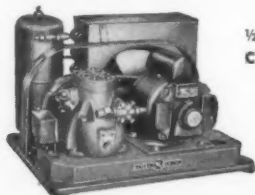
Here's how G.E.'s thin valve plate cuts operating costs

A crucial spot where compressor capacity can be lost is in the gas passages of the valve plate. In a thick valve plate a large amount of refrigerant gas will remain after each compression stroke. On the next stroke, the piston must compress all this gas again, wasting energy and increasing power costs.

General Electric's valve plate—machined with exacting precision and constructed of high-grade spring steel—is so thin that there is very little

space in which gas can remain, yet the passages are wide enough to keep gas friction low. Compressor efficiency stays high and operating cost is cut.

There is added efficiency in the quick, sure action of the valves which peel open like an orange along the curved contour of the valve retainer. The peeling action produced by this retainer promotes long valve life by eliminating valve slap.



½ hp
CWC-31B

G-E Open Type Condensing Units,
¼-10 hp. G-E Sealed Units, ¼-½ hp.
G-E Compressor Bodies, ¼-10 hp.

You can put your confidence in—

GENERAL  ELECTRIC

FREE! DATA ON G-E SEALED AND OPEN UNITS

General Electric Company
Air Conditioning Dept., Sec. CR-12, Bloomfield, N. J.

Please send me literature on:

G-E Hermetics ☐ G-E Open Units ☐ G-E Renewal Parts ☐
I am a Service Engineer ☐ Dealer ☐ Manufacturer ☐ Contractor ☐

NAME.....

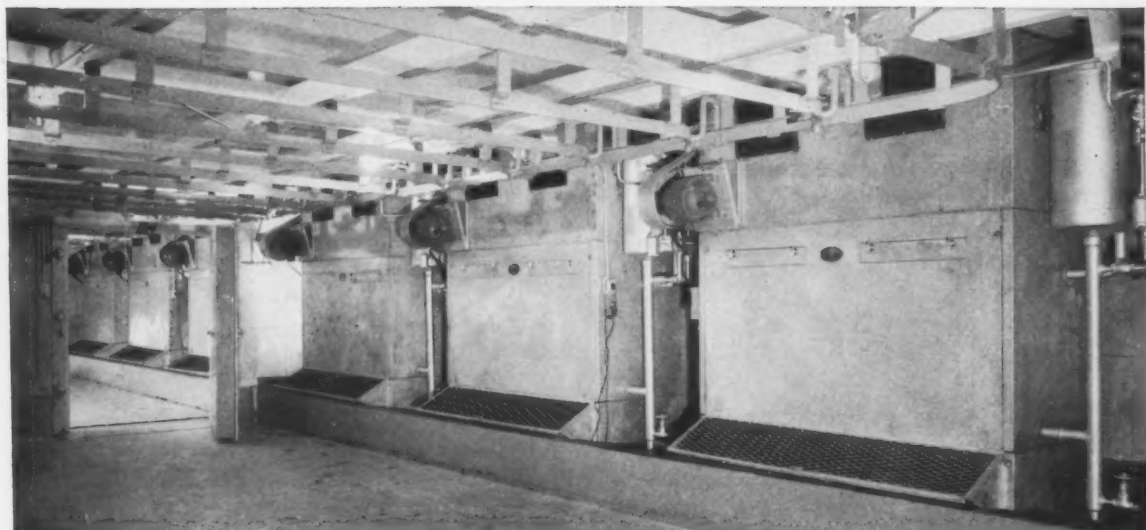
COMPANY.....

ADDRESS.....

CITY.....ZONE.....STATE.....

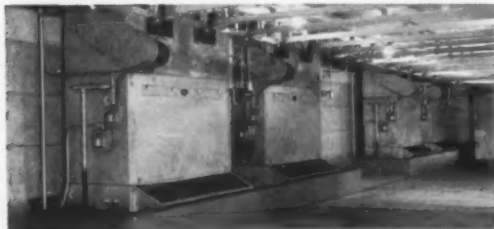
Sharp freezing
28,800 lbs. of beef
is easy with

Acme **BLO-COLD***



* Trade Mark

Sharp-freezing and storing more than 605 quarters of beef every 36 hours was the problem for the James Allan & Sons Plant in San Francisco. After slaughtering, the beef is frozen in two preliminary handling rooms, which are kept at -15° F. These two rooms hold about 280 quarters of beef. After this preliminary freezing the beef goes into the "holding freezer" where 325 quarters of beef are kept in stock for delivery at temperature of 0° F. The entire freezing installation consists of ten ACME Blo-Cold Units, three in each of the preliminary freezing rooms—four in the "holding freezer". The James Allan & Sons Company is the largest Packer in the San Francisco area and their Plant is the only one that can deliver this large quantity of beef—about 28,800 lbs. frozen at -15° and kept at 0° F. for delivery. Other Companies "cool" but do not freeze.



The Engineers for the James Allan & Sons Company, selected ACME Blo-Cold Units on the basis of comparative data, because of their simple installation and low-cost, dependable operation.

The versatility of the ACME Blo-Cold Unit makes it adaptable to a variety of applications. ACME Engineers will gladly cooperate in finding a low-cost solution to your Refrigeration problem. Write today—without obligation.



ACME INDUSTRIES, INC., JACKSON, MICHIGAN, U.S.A.
Air Conditioning and Refrigeration Division

CONTINUOUSLY SERVING THE AIR CONDITIONING AND REFRIGERATION INDUSTRY SINCE 1919

Circle No. 18 on Reader Service Card for more information

DECEMBER, 1951 • COMMERCIAL REFRIGERATION

*"It's better
5
big ways!"*



NIBCO CLOSE-RUFF ELBOW

Check Them
Yourself
With Free
Sample

1. **SHORT RADIUS** — made to fit tight spots.
2. **STRONG AND RUGGED** — with compact design.
3. **PURE COPPER** — matches with copper tube.
4. **FASTER INSTALLATION** — heats up quickly.
5. **ECONOMY WEIGHT** — saves copper and space.



NIBCO

NORTHERN INDIANA BRASS CO.
1214 PLUM STREET, ELKHART, INDIANA

We'll gladly send you, without cost, a new Nibco Close-Ruff Elbow so you can see for yourself how it helps speed the job and protect your profits. Mail Coupon Now for Your Free Sample!

NORTHERN INDIANA BRASS COMPANY
1214 Plum Street, Elkhart, Indiana

Please send Free Sample of the New Nibco Close-Ruff Elbow to

Name _____

Address _____

City _____ State _____

What the serviceman should know about "VIRGINIA" REFRIGERATION products

"EXTRA DRY ESOTOO"

(B.P. +14°F.)

"Extra Dry" is the refrigeration grade SO₂ that service and maintenance engineers have endorsed for more than 20 years. Comes in all popular cylinder sizes.

"V-METH-L" (B.P. -10.7°F.)

Virginia Methyl Chloride is made specifically for refrigeration use. Low moisture content, low acidity and narrow boiling range recommend "V-Meth-L" for the most exacting requirements.

"FREON" REFRIGERANTS

"FREON-113"	"FREON-114"	"FREON-11"
Boiling Point	Boiling Point	Boiling Point
117.6°F.	38.0°F.	74.7°F.

"FREON-12"	"FREON-22"
Boiling Point	Boiling Point
-21.6°F.	-41.4°F.

Virginia Smelting Company is distributor for "Kinetic" Chemicals "Freon" Refrigerants and for "Suniso" Refrigeration Oils.

**TO CHARGE A SYSTEM, USE REFRIGERANTS THAT ARE
CONSISTENTLY PURE, CONSISTENTLY SURE**

STOP THAT DRIP with *PRESSTITE* INSULATION TAPE

Now you can stop that constant drip of suction lines, circulating cold water pipes, valves and fittings—stop it once and for all with Presstite Insulation Tape. It quickly and effectively insulates against condensation, and it's so easy to use anybody can apply it. Presstite Tape comes in rolls 2" wide and 1/8" thick. It contains 40 percent virgin cork and will adhere to any metal surface. Wrappings can be built up to any thickness desired. Joints are self-sealing. No cements or other wrappings are needed. The convenient package contains 30 lineal feet. Stop customer dissatisfaction before it can start—use Presstite Tape on all new and reconditioned installations.



VIRGINIA
Refrigerants

**ASK YOUR WHOLESALER
OR WRITE
VIRGINIA SMELTING
COMPANY**

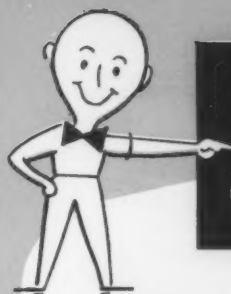
WEST NORFOLK, VIRGINIA

PHILADELPHIA • NEW YORK • BOSTON
CHICAGO • DETROIT • ATLANTA

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DECEMBER, 1951 • COMMERCIAL REFRIGERATION

IN REFRIGERATION WORK



**THE BEST
IS NONE
TOO GOOD**

use
KEROTEST

HEAVYWEIGHT

**Refrigeration
Quality**

FITTINGS

<p>Sure is hard to make a Freon-tight joint when you're working with a small hex like this</p> <p>Why not use Heavyweight Refrigeration Quality Fittings that have good, substantial hexes for a secure wrench grip</p>	<p>I'm sure tired of twisting off the corners of those light hexes</p> <p>I'll use the heavy ones from now on!</p>	<p>Next time I'll use fittings with long dry-seal pipe threads</p>	<p>How am I to tighten that nut when short pipe threads leave no clearance for turning?</p>
<p>"Oops, there goes another fitting!"</p> <p>From now on I'm going to get fittings with FLARE PROTECTORS</p>	<p>Why take a chance on castings? there is always a chance for a pinhole leak</p> <p>Use FORGED ELBOWS TEES and CROSSES ...they're absolutely non-porous</p>	<p>Sure they cost a little more</p> <p>BUT the few cents per job extra saves me</p>	<p>"A chain is only as strong as its weakest link"</p> <p>The fittings you use are the links between one piece of your refrigeration equipment and another.</p> <p>You insist on the best in coils, condensing units, valves, driers, and accessories... be sure they are joined together with the best in fittings!</p>



At your
KEROTEST
Wholesaler

KEROTEST MANUFACTURING COMPANY • PITTSBURGH • 22, PA.

Circle No. 21 on Reader Service Card for more information
and AIR CONDITIONING • DECEMBER, 1951

HOT SALES TIP

Here's how to make
EXTRA PROFITS
from your present
refrigeration customer list



1 SEE 'EM



Go over your list . . . many of your customers and prospects have pressure-lubricated compressors. And each one is a logical prospect for the PENN Series 275 Oil Protection Control.

2 TELL 'EM



Explain how low oil pressure or slow pick-up of oil pressure can damage seals and bearings. And it *can* happen at any time even in the best of refrigeration compressors.

3 SHOW 'EM



If oil pressure does not build up to the proper point when compressor starts . . . or if oil pressure drops during

running cycle . . . the PENN Series 275 Oil Protection Control stops compressor operation *automatically*.

4 SELL 'EM



Every owner of a pressure-lubricated compressor *needs* this positive, automatic protection. It's easy to sell . . . ask for the order.

For extra profits . . . sell the Series 275. Get the facts . . . ask your manufacturer, wholesaler or write **Penn Electric Switch Co., Goshen, Indiana**. Export Division: 13 East 40th Street, New York 16, U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario.

PENN
AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

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COMPLETE REFRIGERATOR INTERIORS, air conditioning housings, lighting units, plumbing fixtures and other large items for both homes and industry, molded in one piece from plastics, may be coming off the production lines in the not too distant future. This predicted invasion of large plastic parts into the consumer and industrial field will be made possible by recent developments in injection molding presses. Pre-plasticizing equipment on some of these presses enable the coloring and molding of certain types of plastics in one operation. Now in the experimental stage, the speed in which the larger plastic items are put into production will depend largely on the availability of plastic compounds.

AMERICA IS EATING UP iron and steel scrap at the highest rate in history. The supply of scrap at mills and foundries remains below safe working levels. It's a matter of serious concern to defense mobilization officials, because unless sufficient quantities of scrap are available, the nation's mills simply cannot turn out the enormous tonnage of steel required to keep defense production and civilian requirements going at their present levels. Steel production in 1951 has a goal of 110 million tons; which will require 36 million tons of scrap. You don't have to be in the steel business to have needed iron and steel scrap. Scrap comes from any factory or firm using machinery or manufacturing metal products—it's an "old soldier" which never dies . . . and never fades away. The need is urgent. Defense Mobilizer Charles E. Wilson calls it "a question of the security of America". Let's do everything we possibly can to assist the scrap recovery program.

PLASTIC HAS FOUND ANOTHER USE in the electric motor field, where it is now being used to replace critical aluminum and bronze for blowers in small, totally-enclosed, fan-cooled a-c motors. The plastic blowers consist of a polyester resin reinforced with glass fibers. Glass fiber reinforcement has been found to be superior to organic fiber reinforcement, it is said, because of increased resistance to chemical attack, and increased strength per pound. The plastic blower is said to be unaffected by the chemical agents that attack some metals in corrosive atmospheres, and is one third lighter in weight than its metal counterparts.

THE FREEZING POINT OF WATER, most of us ordinarily assume, is 32 F—but now we hear that this isn't so. Water usually freezes at that temperature, true enough, but only because of impurities present, we're told. Tiny impurities, coated with ice, fall into the water, and water molecules cling to them, building up chunks of ice. Water, as nearly pure as possible, has been cooled to 37 degrees below zero before freezing, we are informed. Near that temperature, if you dropped a small piece of ice into the still-liquid water, it would freeze solid instantly.

FROM THE BELGIAN CONGO comes the report, by way of *World Refrigeration*, that the Belgian Ministry of Colonies is proposing to install a considerable quantity of refrigerating equipment at the Kamina military base. Items to be installed will include a meat freezing room, with a capacity of 4 metric tons of fresh meat per 24 hours, at a freezing temperature of between -10 and -15 C; and a cold room capable of storing about 30 metric tons of frozen meat at the same approximate temperatures.

IF YOU KNOW ONE of those students who has aspirations of becoming a great creative engineer, better tell him to start boning up on his geometry. Dr. Ernst F. W. Alexanderson, who was recently awarded his 320th patent for inventions made during his 49 years with General Electric, says that ability to solve geometric problems is the best intelligence test for creative engineering ability. Algebra can be figured by routine rule, he says, but solution of geometry problems requires the use of imagination. Dr. Alexanderson has averaged one patent every seven weeks during his service with General Electric.



*What supoib taste! The air conditioning
will be equipped with Honeywell Controls!*

We doubt that cartoonist Larry Reynolds' character, Butch, knows the difference between a conduit and a damper.

But he certainly has one mighty sound idea.

The plain fact is—there's no better guarantee of dependable, trouble-free operation than the Honeywell name on automatic controls for air conditioning and refrigeration.

So make *your* first choice Honeywell Controls—the first choice of architects, builders and consumers. For full information—or an 8½" x 9" personalized reproduction of this Reynolds' cartoon—write today to Honeywell, Dept. CR-12-206, Minneapolis 8, Minnesota. In Canada, Toronto 17, Ontario.

MINNEAPOLIS
Honeywell

First in Controls



Circle No. 23 on Reader Service Card for more information

DECEMBER, 1951 • COMMERCIAL REFRIGERATION

Albert, Alice and Alfred Penguin, guests of Alco Valve Co. at the All-Industry Show, get a special short-wave radio message from their relatives in the Antarctic through Jo Ann Owens, one of the operators of the Message Center maintained by Commercial Refrigeration and Air Conditioning as a convenience and service to Show visitors and exhibitors. The formal-looking birds, imported especially for the Alco exhibit, require air conditions of unusual purity to insure their health outside their native habitat.



OPERATION "PENGUIN"

MEET Alice, Albert and Alfred Penguin—three visitors from the Antarctic who can lay undisputed claim to having traveled the farthest from their home surroundings to be present at the 7th All-Industry Refrigeration and Air Conditioning Exposition.

"Operation Penguin" was a project of Alco Valve Co., which housed the birds in a specially air-conditioned enclosure at the Show. Needless to say, Alice, Albert and Alfred (the names given to them by Alco although your guess is as good as anybody's as to which one is which) were quite an attraction.

Considerable planning—about two years of it, in fact—went into the successful completion of the penguin project. It was necessary, first of all, to locate an expedition that was going to the Antarctic, and make arrangement to have the birds brought back to "civilization". This part of the project was completed only a few weeks prior to the Show.

At that time, it was learned that the

expedition—and the penguins—had returned to its base in Germany, and the birds were flown from there to St. Louis, and housed in the Municipal Zoo there until it was time to take them to Chicago.

The birds are of the King Penguin family, the second largest of 17 recognized species of penguins in size, and the most brilliant of coloration. About 3 feet tall, they weigh from 40 to 45 pounds each. Zoologists know them by the name "Aptenodytes patagonicus."

Their normal habitat is the southern oceans from Tierra del Fuego to Macquarie Island, and occasionally north to the Falkland Islands, Tasmania and New Zealand. Because of the germ-free climate of their natural habitat, special conditions of temperature and air purity are required to keep them healthy in a climate like ours.

At the Show, the penguins were housed in a glassed-in enclosure maintained at a temperature of 54 to

55 F by means of a 1-ton refrigeration machine using a multi-outlet thermal valve, and with a back-pressure valve in the suction line. Air temperature was thermostatically controlled, with the thermostat actuating a solenoid valve in the liquid line, using low pressure control for the pump-down cycle.

Air purity is assured by an extra-thick bank of filters, and by ultraviolet light in the air stream to the enclosure. Air within the enclosure is filtered to 2 to 3 microns, and is as nearly germ-free as possible. Otherwise the birds tend to contract a fungus-like infection in their respiratory organs, which in most cases causes their death.

Alco is donating the penguins and their air-conditioned "home" to the St. Louis Zoo. It is also planned to build a larger permanent enclosure to house them, with the equipment being donated by several refrigeration equipment manufacturers in the St. Louis area.

Get the most out of YOUR SALES DOLLAR

Top Executives of Three Successful
Commercial Refrigeration Distributors Tell

1. "How we train new salesmen"
2. "How our incentive program aids sales"
3. "How we supervise our sales force"

If you're looking for help in ironing out the rough spots in your own sales organization, read their detailed and fact-filled discussions of these fundamental phases of sales management. The information they contain is based not on textbook theory but on practical, proven operating experience.

1

*"How we train
new salesmen"*

PAUL ALLEN

Paul Allen Refrigeration Co.
Little Rock, Ark.

THROUGH years of selecting, hiring, training and paying salesmen, our company has found that the energetic man with the forceful character makes a good salesman.

The men we have hired with little or no background of selling experience have made our best men. Someone familiar with the grocery, meat, or restaurant business may find this knowledge helpful, but the essential factors are energy and personality.

The fellow with the quick smile and the quick step will not waste the time of the employer or the customer. He is welcome anywhere.

A good course in personality development is one of the most basic preparations for selling. We look for such qualities of enthusiasm in all our new men.

The first step we take in the actual training program for the new salesman is the process of familiarizing him with the products he is going to sell.

We let him study our display models, and encourage him to ask questions.

Then we show him large installations in the field so he may become acquainted with the use of the products. We again encourage him to ask questions of us, and of the customer.

We try to satisfy all his problems concerning mechanical operation and the installation of the fixtures.

Then we show him all the records which actually reveal the need of

the grocer or other businessman for our products, and point out to him just how our products can benefit each type of prospect.

We tell him all we know about the type of people he will be dealing with and what problems they face. We relate to him our past experiences of satisfied and dissatisfied customers, and we tell him the mistakes we have all made and how they can be avoided.

At no time do we tell him the selling game is easy, or difficult. We only explain to him that the more he puts into his work, the more satisfaction and money he will get out of it. At no time do we let him get the idea that he will be anything but the best salesman we have.

The biggest selling job is that of the trainer—he must sell the product to the salesman.

The salesman must have the indestructible belief that the product he is going to sell is the best, and only the best. We tell him about the methods employed in the manufacturing of the product. We try to give him complete faith in the perfection of the product.

We think this selling of the product to the salesman gives him a fundamental starting point for his future sales. I often hear one of our salesmen on the floor using some of the same phrasing I have told to him, adding his own ideas, of course.

Training Is Never Over

The training of a new salesman is never over. We find it very important to keep up the interest of some of our oldest salesmen.

We take them to factory sales meetings when possible, and even to visit the factory itself. We have our own informal sales meetings and pep meetings, which might occur in my office or in a restaurant over a cup of coffee.

We shun all types of formality regarding our salesmen, since it is our belief that a too-formal salesman loses familiarity with the prospect. We swap ideas and find that a good heated argument every once in a while will keep a salesman from becoming rusty.

We all look forward to the Saturday morning get-togethers when we can relate the week's experiences on the road.

If I find a salesman in a slump, I do not consider it wasting time to go out on the road with him and give him my help, or double him up with a salesman who is having a winning streak. It is very important to be encouraging.

If I find one of my salesmen is having a hard time closing a deal, I always volunteer to help—without pulling rank, of course. I always try to remember that a salesman will work better for a boss he likes.

One last and important point is that we don't believe in sending our salesman out on the road empty handed. One of the big jobs in our office is keeping the salesman well equipped with good catalogues, and simplified pricing methods.

2

"How our incentive program aids sales"

FRANK D. STELLA

F. D. Stella Products Co.

Detroit, Mich.

FOR a salesman to reach any goal, there must be a plan. This plan should contain not only the material the salesman should know—such as knowing his product, market, how to qualify his prospect, best methods of closing sales, etc.—but also should include the company's obligation to the salesman, as well as a program to promote incentives to aid the salesmen in the procurement of added sales.

Second to our plan of profit sharing, the best sales incentives that we employ in our organization are sales contests. There is a wide difference of opinion among our sales super-

visors, however, on the question of such contests. Some oppose them strongly on the grounds that they are relics of the high pressure days and that they destroy customer good will. Others admit they may have merit in motivating salesmen.

It is important for the sales executive, in planning activities intended to motivate salesmen, to consider their desires and ambitions, which might be catalogued as follows:

1. Salesmen want to be "somebody"—they may have the ambition to be a sales manager or a supervisor, or even president.
2. They want recognition—a pat on the back for their efforts.
3. They have pride—the satisfaction of a job well done.
4. They want appreciation—they work better when the boss has his eye on them.
5. They like competition—they like to pit their skill against other salesmen.

6 Tips to Success

Before planning a sales contest, the following factors should be considered.

1. Ask yourself "Why start a contest?"
2. Consider carefully how long it should be.
3. Develop a motivating central theme.
4. Bring the wives or girl friends or family into the picture.
5. Make the prize worthwhile—and take into consideration the fact that merchandise is better than cash.
6. Provide for a whirlwind finish.

Properly used, a sales contest not only pays, but it can be one of the most profitable devices for future selling. Improperly used it is a sheer waste of money.

Properly presented it gives salesmen the urge to go out and exert themselves to the limit. Improperly presented it makes them resentful of an arrangement which is trying to prod them from behind.

The first yardstick that must be used in determining whether to have a sales contest is, "What will it do for the salesmen, besides providing an urge for them to strive for 'plus business?'" If the plan is right, a

constructive program should do these things:

1. Show the salesman what he should be.
2. Show him what he should know.
3. Show him what he should do—and help him to do it.

The last objective is particularly important because it is seldom recognized in sales planning. We are all inclined to tell our salesmen and our dealers what they must do to get business, but we need to go a step further and show them how to get it.

It is important to equalize the sales contest.

The conception of a sales contest at one time was a competition in which the man who got the most business during the period of the contest won a watch. That practice had one great fault—the same man or men won most of the watches, and the average salesmen (who comprise about 80% of any organization) quickly lost interest. They wouldn't even try to win a prize—and most of them had a watch.

Since it is more important to stimulate the tail-enders than the few top men, sales supervisors hit upon the idea of handicapping salesmen having the above-average territories, so as to give the less fortunate a break. The sales task was developed, with each man being given a definite task, and with prizes going to those who succeeded in showing the highest percentage of increase.

Give Tail-Enders a Chance

This, frankly, is the most logical method of equalizing a contest so as to permit your tail-enders to enjoy the recognition and pride due them as average salesmen.

When considering the question of whether cash or merchandise is best as a prize, remember that money doesn't mean everything to a salesman if he is of top-notch calibre. Many salesmen will work twice as hard to win a davenport or an automatic washer which their wives or families have selected from a prize catalog as they will to win a check for themselves.

It is my feeling that merchandise is better than money as a reward for constructive sales achievement. When you set up a prize appropriation it

will go further in merchandise, which you can purchase wholesale, than it will go if paid to the salesman in cash.

However, if you ask nine out of ten salesmen which they prefer, they will tell you money. Usually they'll use the money to buy the very things that can be found in any good prize book.

There is a current trend toward making competitive activities continuous. Instead of having one or two contests a year, an all-year program of contests is set up and executed so that there will be a continuous effort behind sales instead of an occasional push.

The argument that one contest after another dulls interest does not seem
Continued on page 55

3

"How we supervise our salesmen"

R. J. WISCHUSEN

Engineering & Refrigeration, Inc.
Jersey City, N. J.

METHODS of supervising salesmen in any commercial refrigeration sales firm must necessarily be tailored to that firm's specific needs and requirements. The methods which we employ, for instance, have been designed to work with maximum efficiency in relation to our company's particular organizational structure and geographical location, but the basic principles should hold true for any comparable program of sound sales supervision.

Our firm consists of a main office at Jersey City, N. J., which is just across the river from metropolitan New York, and a branch office in

the heart of metropolitan Philadelphia, Pa. We therefore are confronted with a very serious traffic problem which makes it necessary for us to eliminate the practice of having our salesmen report to the office in person each morning.

Consequently, the procedure we have established is for each salesman to call the office between 9:00 and 9:30 each morning. During these phone reports our salesmen have a chance to discuss any problems they may have encountered during the previous day and at the same time outline their itinerary for the day just starting.

This matter of an itinerary is extremely important, as this makes it possible for the office to locate any of the salesmen at any time during the day if necessary.

No Arm-Chair Sales Manager

Part of the success of our method of supervision lies in the fact that the program is headed by a sales manager who definitely is not an "arm-chair" executive. In fact, he spends practically all of his time in the field working with the salesmen.

It is only natural that direct responsibility for supervision of our sales force lies with our sales manager, but in order to provide him with sufficient time to follow the successful pattern he has established of working in the field with our salesmen we have provided him with assistants in the form of an engineering-operations manager and a service manager.

Thus, when our salesmen call in to report, these people are available to work with them, even though the sales manager himself may be out in the field. They can really be of constructive assistance to the salesmen, because they are cognizant of the problems that confront a salesman in store layout work, competitive comparisons, etc.

This form of assistance and supervision makes it possible for our sales manager to do his field work without the constant worry of no one being available at the main office to assist his men should they require it.

It is our company's belief that a month of constant field work under the direct guidance of a capable sales manager is worth much more than a year spent by a salesman working

by himself and merely getting conversation about how to do a job from a sales manager who just sits back and talks and never goes out to *show* his men how a job should be handled.

Weekly Meeting a "Must"

Each Friday, starting late in the afternoon and carrying on into the evening, we hold a meeting of all salesmen. Prior to the sales meeting our sales manager has an opportunity to discuss the assistance and supervision given to the salesmen by other members of our supervisory staff. This enables our sales manager to put greater stress on any particular shortcoming of an individual salesman when he is exercising his direct field supervision.

To facilitate the more or less indirect supervision provided by our sales manager, we have developed a special, detailed "Salesman's Report" form specifically designed to give our office, as well as the salesman, a complete picture of each customer's establishment.

Following the name and address of the establishment and the date of the call we have provided space for "Type of Business" and "Name of Buyer". The former enables us to set up a list of customers classified by types of establishments for use in our direct mail program; the latter helps assure that any such literature reaches the proper party in each organization.

Canvassing Results Analyzed

The next part of our form merely ask whether the call was made at the customer's request, as the result of a specific lead, or on cold canvass. This provides a firm record of the cold canvass calls made by each salesman over a given period of time and often gives us an important clue as to why business in any salesman's territory is improving or falling off. It gives us concrete facts to which we can refer in helping each salesman get the most out of his assigned territory.

The next phase of our Salesman's Report form is probably the most vital part, as it requires the salesman to fill in a list of all equipment in the store, giving both type and make.

From this information we can quickly determine whether a customer has or does not have a meat depart-

Continued on page 54



Commercial equipment like this displayed in a "home show" booth sticks out like a sore thumb—and attracts a lot of attention to the firm which sells it.

"Home Base" for Sales

WHAT good can a "home show" do an air conditioning contractor who deals entirely in the sale and installation of large scale systems?

"None whatever!" you're probably tempted to retort. But ask A. R. Nuckols, whose firm has exhibited regularly in fairs and home shows in its community, and he'll surprise you by answering "Plenty!"

Nuckols is head of Nuckols-Cathey Co., Carrier air conditioning distributors in Waco, Tex. And despite the commercial and industrial slant of the company's activities he is firmly convinced that parading his firm's name and work before the general public at home shows comes under the category of "good business".

In each of its booth displays at such exhibitions, Nuckols-Cathey includes such items as packaged air conditioning units up to 10 tons, special-purpose heating equipment, ice makers, and food freezers. In addition the exhibit always includes a prominent display of photographs of some of the outstanding buildings air conditioned by the firm.

Sometimes a special "gimmick" is introduced purely for the purpose of attracting the attention of show-goers. During the most recent home show held in the Waco city auditorium, for instance, a hind-quarter of beef was given away through a drawing of registration cards signed by visitors to the Nuckols-Cathey booth. Through stunts like this, the firm gets a lot of local people to look over its display, and thus spreads in ever widening circles word of the company's name and facilities.

"We make a lot of friends in this way," Nuckols says. And his partner, William Cathey, wholeheartedly agrees.

"While most of them may be merely homeowners who will never purchase air conditioning in their lives," he continues, "we feel that the simple act of getting our firm name before thousands of home town people makes it a pretty good bet that our name will be mentioned whenever the subject of air conditioning comes up.

"And this isn't just a theory with us, either," he concludes with finality, "because we can actually trace many of the large-scale air conditioning installations which we make each year to the fact that the Nuckols-Cathey name was remembered from a home show exhibit."

By James J. LaSalvia

2. Coefficient of Transmission

(See illustrated examples on facing page.)

BEFORE one can determine the "heat loss" of a room or space to be heated, it is necessary to have a knowledge of the thermal capacities of the wall enclosing the space.

In the previous article we had a discussion on heat transfer; how it flows and at what rate. This is the basis for calculating the heat required. For any wall structure, there is a specific value. This value is designated in the heating industry as "U". This is known as the "overall coefficient of heat transmission."

This "U" is calculated from known values of thermal conductance of the various components of wall structures, which are given in Tables 1 and 2, and with definite procedure to follow, by using standard approved symbols, which are:

Heat Transfer Symbols

U = Thermal transmittance or overall coefficient of heat transmission in Btu per hour per square foot of wall surface for a temperature of 1 degree F. difference between the air on the two sides of the wall.

k = Thermal conductivity for a 1" thick homogeneous wall, in Btu per hour per square foot per degree F. temperature difference.

C = Thermal conductance through a non-homogeneous material in Btu per hour per square foot per degree F. temperature difference for the actual thickness used in construction.

f = Film or surface radiation, conductance and convection in Btu per hour per square foot of surface per degree F. temperature difference between the surface and the surrounding air.

a = Thermal conductance, radiation and convection through an air space in Btu per hour per square foot of area per degree F. temperature difference.

R = Resistance or Resistivity and is numerically the reciprocal of transmission, conductance or conductivity.

In each of the above cases the Resistance "R" is equal to:

$$R = \frac{1}{U} = \text{overall resistance of a wall, air to air}$$

$$R = \frac{1}{k} = \text{internal resistivity}$$

$$R = \frac{1}{C} = \text{internal resistance}$$

$$R = \frac{1}{f} = \text{surface or film resistance}$$

$$R = \frac{1}{a} = \text{air space resistance}$$

x = thickness of wall in inches.

The Resistance $\frac{1}{f}$ is broken down to $\frac{1}{f_i}$ and $\frac{1}{f_o}$ as surface resistance of the inside and outside walls respectively.

$\frac{x_1}{k_1}$, $\frac{x_2}{k_2}$, $\frac{x_3}{k_3}$ etc. are the resistance through the component parts of the wall.

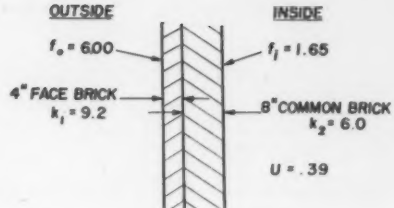
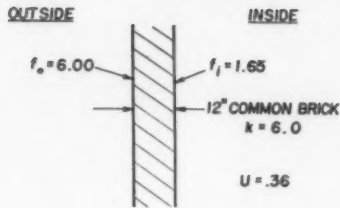
The total resistance to the transmission of heat will be equal to the sum of the various resistances through surfaces and material, as:

$$\frac{1}{U} = \frac{1}{f_o} + \frac{1}{f_i} + \frac{x_1}{k_1} + \frac{x_2}{k_2} + \frac{x_3}{k_3} + \text{etc.}$$

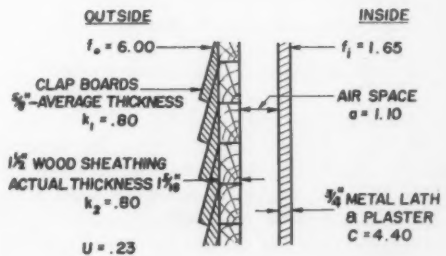
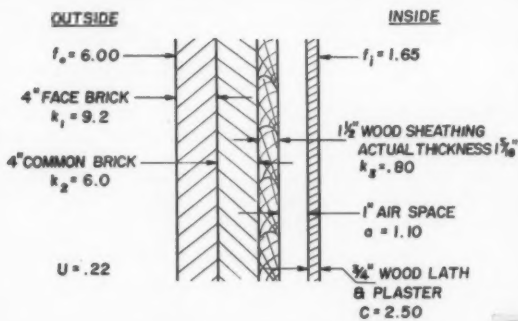
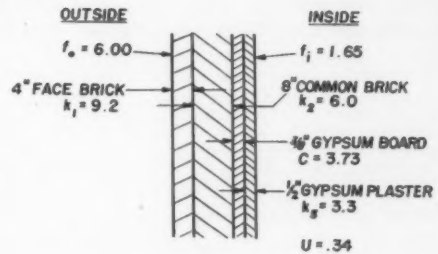
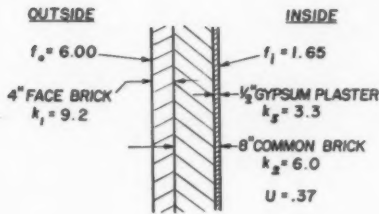
Using the same nomenclature, the basic formula for the overall transmission factor can be expressed as:

$$U = \frac{1}{\frac{1}{f_o} + \frac{x_1}{k_1} + \frac{x_2}{k_2} + \frac{x_3}{k_3} + \frac{1}{f_i}} \quad (1)$$

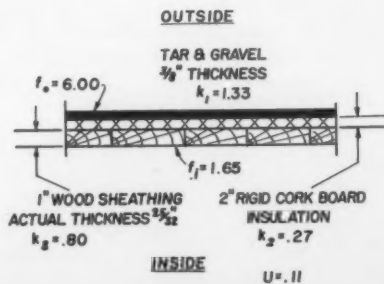
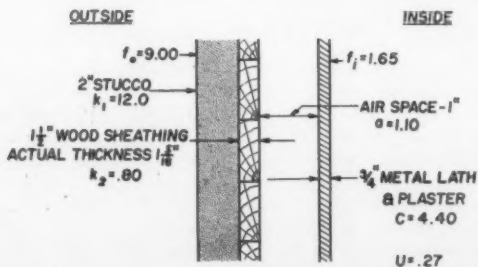
Continued on page 32



1 2
3 4



5 6
7 8



Continued from page 30

In cases where the conductances for certain materials are given for definite thicknesses in which they are regularly manufactured, use the value $\frac{1}{C}$ instead of $\frac{x}{k}$ in the above formula as:

$$U = \frac{1}{\frac{1}{f_o} + \frac{1}{C} + \frac{1}{C_1} + \frac{1}{f_i}} \quad (2)$$

Where an air space exists in a common structure, the value $\frac{1}{a}$ should be added to the conductivities of $\frac{x}{k}$ or to the conductances $\frac{1}{C}$ or to both, whichever the case may be. For instance many times a common construction will consist of various materials, where one material the heat transfer is noted in its conductivity, another material has definite thickness and its heat transfer is noted by its conductance, and also includes an air space. In this case the formula changes to:

$$U = \frac{1}{\frac{1}{f_o} + \frac{x}{k} + \frac{1}{C} + \frac{1}{a} + \frac{1}{f_i}} \quad (3)$$

Coefficient of Transmission

To calculate the overall coefficient of transmission U it is necessary to have the conductivity or the conductance of the materials, also the conductance of air spaces if required, and also surface coefficients for still and moving air.

The outside surface coefficient is always figured for 15 miles per hour wind velocity, while the inside surface coefficient is always figured as still air. When the coefficient of transmission has to be determined for a partition wall between two adjacent rooms, carrying different inside temperatures, use the inside surface coefficient for both sides of the partition.

All of these factors are available for determining values of U for wind exposure on outside walls for 15 miles per hour. It is not necessary to figure for other than 15 miles per hour, as a difference of 6 miles per hour either way will not change the overall coefficient of an average wall more than one percent. So that in most cases the accuracy does not warrant it.

Table 1 shows the conductance C and Table 2 shows the conductivity of various materials. Table 3 gives the conductance of air spaces for various widths in inches, and Table 4 surface coefficients of various materials for outside and inside wall exposures, as used in the industry. By using these tables, the calculations for the overall coefficient of heat transmission U becomes a simple matter.

Examples

Calculate the overall coefficient of heat transmission U for the various parts of a room or space as shown in Figs. 1 through 8.

Example No. 1: Given a 12 inch wall of common brick as shown in Fig. 1. The wall to be figured for 15 miles per hour wind on the outside and for still air on

the inside. The outside surface coefficient f_o in this case is 6.00 and the inside surface coefficient f_i is 1.65 from Table 4. The conductivity for common brick is 6.0, from Table 2.

Using Formula (1)
$$U = \frac{1}{\frac{1}{f_o} + \frac{x}{k} + \frac{1}{f_i}}$$

$$\text{Then } U = \frac{1}{\frac{1}{6.00} + \frac{12''}{6.00} + \frac{1}{1.65}} = \frac{1}{.167 + 2.00 + .606} = \frac{1}{2.773}$$

$$U = .36$$

Example No. 2: If the wall was changed from 12 inch common brick as above to 4 inch face brick where the conductivity k is 9.2 and 8 inch common brick is 6.0 as in Fig. 2.

$$U = \frac{1}{\frac{1}{6.00} + \frac{4''}{9.2} + \frac{8''}{6.00} + \frac{1}{1.65}} = \frac{1}{2.541}$$

$$U = .39$$

Example No. 3: If the wall was held the same as in Fig. 2 and $\frac{1}{2}$ " gypsum plaster was added on the inside surface, where the conductivity k = 3.3 as in Fig. 3. The U in this case will be:

$$U = \frac{1}{\frac{1}{6.00} + \frac{4''}{9.2} + \frac{8''}{6.00} + \frac{.5''}{3.3} + \frac{1}{1.65}} = \frac{1}{2.692}$$

$$U = .37$$

Example No. 4: Determine the coefficient of transmission U of an outside wall as in Fig. 4, consisting of 4 inch face brick, 8 inch common brick, $\frac{3}{8}$ inch gypsum board and $\frac{1}{2}$ inch gypsum plaster applied directly to the interior surface. The conductivity k for face brick is 9.2 and of common brick 6.0; the conductance C of $\frac{3}{8}$ inch gypsum board is 3.73 and conductivity k of gypsum plaster is 3.3, for 15 miles per hour wind on the outside and still air on the inside.

Use a combination of Formulas 1 & 2 as:

$$U = \frac{1}{\frac{1}{f_o} + \frac{1}{C} + \frac{x_1}{k_1} + \frac{x_2}{k_2} + \frac{x_3}{k_3} + \frac{1}{f_i}}$$

$$U = \frac{1}{\frac{1}{6.00} + \frac{1}{3.73} + \frac{4''}{9.2} + \frac{8''}{6.00} + \frac{.5''}{3.3} + \frac{1}{1.65}} = \frac{1}{2.96}$$

$$U = .34$$

Example No. 5: Calculate the coefficient of transmission U of an outside wall as in Fig. 5, consisting of 4 inch face brick, 4 inch common brick, $1\frac{1}{2}$ inch wood sheathing, (actual thickness $1\frac{5}{16}$ ") 1 inch air space and $\frac{3}{4}$ inch wood lath and plaster. The conductivity of face brick k is 9.2, and common brick is 6.0, and wood sheathing is .80, the conductance (a) for 1 inch air space (taken at 40 degrees mean temperature) is 1.10 and the conductance C of $\frac{3}{4}$ inch wood lath and plaster is 2.50, for still air on the inside surface and the outside surface for 15 miles per hour wind velocity.

Continued on page 60

about PEOPLE

Kramer Trenton Co. announces the appointment of **S. Charles Segal** as



general sales manager. Segal has been affiliated with Kramer Trenton for 15 years and has served as its chief engineer for the past 11 years. As general sales manager he will

also direct the activities of the firm's advertising department. Recognized as an outstanding technician in the heat transfer field, Segal has made significant contributions to the many advancements in heat transfer research in the Kramer Trenton's research laboratory. A registered professional engineer, he has taken a very active part in engineering organizations.

Clark Bridgman and **Harry Barge** have been appointed to the staff of the Chicago office of Bush Mfg. Co. Both Bridgman and Barge formerly were with the Clark Bridgman Co., Bush factory representative. In addition to these appointments, Bush has announced that **Ben Prather** now is working in the Chicago office as application engineer under the direction of J. K. Campbell, district manager.

Eldon Burnett, who joined General Controls Co. three years ago, has appointed manager of the company's newly opened branch at Omaha, Neb. Burnett was affiliated with Charles D. Jones & Co. of Kansas City before joining the General Controls' staff as a sales engineer. Burnett's



new position will entail complete charge of all Omaha branch office territory activities. This includes sales, engineering and service on the General Controls line.

Election of **William Bynum** as executive vice president of Carrier



Corp. has been announced by Cloud Wampler, president. Bynum was formerly vice president and general sales manager. He joined Carrier in 1930, after graduation from the University of Alabama Polytechnic Institute. From 1931 to 1945, Bynum served in engineering, sales and management capacities in the south and midwest. He then became head of the direct sales department with headquarters in Syracuse, and subsequently was placed in charge of the entire Carrier marketing program.

Ansul Chemical Co. announces the appointment of **Richard A. Line** as



chief engineer, refrigeration division. Line, who held a similar post with Lehigh Mfg. Co. before joining Ansul, is recognized throughout the refrigeration industry for his work in developing the Lehigh reverse cycle defrost system. Prior to his military service he was with Seeger-Sunbeam Corp. as process engineer.

David W. Hoppock has returned to his post as New York District dealer sales manager for Carrier Corp. after almost a year's leave of absence in Washington with the Na-

tional Production Authority and the Defense Production Administration. Hoppock has been serving as special assistant to DPA Administrator, Manly Fleischman, and has been chiefly concerned with organization and general operation of the agency.

The field organization of Nor-Lake, Inc., Hudson, Wis., manufacturer of walk-in refrigerators, has been announced by D. E. Stevens, sales manager as follows: **O. H. Brickson**, 2231 Commonwealth Ave., Madison, Wis.; **William V. Kotel**, 1428 W. Thorndale Ave., Chicago; **Ronald D. Gray**, 108 N. 3rd St., Jacksonville Beach, Fla.; **N. C. Meek**, 3810 S. Broadlawn Circle, Cincinnati; **Ed Stiller**, 150 Causeway St., Boston; **F. W. Borlaug**, 339 Elm St., Denver; and **Albert W. Yenny**, 1103 E. Armour Blvd., Kansas City, Mo.

Appointment of **J. W. Bostwick** as vice president and general manager of Betz Corp. at Hammond, Ind., has been announced by Lyman B. Betz.



Known to his many friends in the industry as "Wallie," Bostwick formerly lived in Evansville where he served as executive vice president of Ajax Corp. of America. Previous to this position he was national sales manager of Servel, Inc.

Bush Mfg. Co. and Heat-X-Changer Co. announce the appointment of **Perley K. Barker** as sales engineer for the eastern New England area. Barker was formerly chief supervisor of the New England refrigeration division of the Great Atlantic and Pacific Tea Co. **C. T. Cavanaugh**, formerly of the engineering and sales department of Bush, has been appointed sales engineer in the western New England and north-eastern New York area.

W. H. Prewitt, Jr. has been appointed manager of Wagner Electric Corp.'s electrical division branch office in Atlanta, Ga., succeeding L. C. Barton, who has retired. Prewitt started with Wagner in 1935.

In estimating any air conditioning job

USE YOUR HEAD

Before bidding on any major installation, the smart contractor will ask himself the following questions:

Do I really
want this job?

*Is this job within the scope of my size and experience?
Does it involve the type of equipment on which I
have built my business?
Is it the type of work on which I can make a profit?
Are my chances of getting this job good, if my bid is
right or if I am low bidder?
Am I justified in spending the amount of money that
it will cost me to estimate this job?*

How can the job
best be handled?

*Read the specifications and study the prints.
Visit the job site, if at all possible.
Jot down a brief of the job.
Sit back and dream. Would you do the job the way
the specs lay it out, or some other way? Would you
add something? Take something away? Create some-
thing new?
If you think changes from the original specs are in-
dicated, then prepare another brief. If you visualize
more than one way of doing the job, list each in out-
line form.
Analyze all your proposals. Consider the advantages
and disadvantages of each, then determine which
method is best.*

before you use your pencil

By Albert G. Weil

Refrigeration Maintenance Corp.,
Chicago

THE refrigeration and air conditioning contractor, in order to remain in business and be successful, must be the world's greatest economist. Who else would have courage, in these uncertain times, to stick his neck out on the chance of a potential and problematical profit . . . for a job that might not be started for 12 months or longer and maybe not finished for a period of two years or more?

We dare to say, when we sign a contract, that wages are going to be at such and such a rate at the time they are required, that material is going to be available and will cost exactly so much when it is needed, that governmental restrictions will not be so harsh that we cannot complete our job. We have to gaze into the crystal ball to foresee these things. We have to bet that we are seeing clearly. We have to bet that our judgment is right and that all factors contributing to a successful conclusion will fall into place when and where they should and at the cost we have wagered.

With the increasing costs and restrictions which the government imposes, it's no wonder that many people in business today can't make the grade. Your risks, as a contractor, are great and your profits are generally modest, even if you do bet right.

Your cost of doing business, which includes estimating cost, material cost, labor cost, overhead cost, contingency cost, and tax cost, is

something you know, or should know, as it applies to your operation.

Your local conditions and competition, knowledge, training, and experience are the determining factors in pricing your jobs. But, if you knew of a method of estimating your air conditioning work on a basis that would bring to you a higher percentage of contract awards as against the total that you figure, and a greater percentage of profit on such awards, wouldn't you be interested? Such a method is the analytical and creative estimate.

Think, Analyze, Create

If you cause yourself to think of the job which you are working on, you will come up with creative ideas. If you analyze the needs of your customer carefully and thoughtfully, you will create a type of estimate which will offer to your customer one or more improvements . . . improvements in design, operation, performance, maintenance, accessibility, compactness, noise level, attractiveness, price.

I mention price last because it isn't so important in the overall scheme of things if you are able to supply something to do a better job.

You can buy a suit for yourself for \$50, or a better wearing, better quality, better fitting one for \$100. If you feel that you receive more in styling, fabric, and fit by paying a tailor \$150 to make a suit for you, that is what you may buy. You, as an individual, have these various suit selections open to you.

Your customers are entitled to the same option of fabric, style, and fit in purchasing their air condition-

ing. Analytical, creative estimating for their needs will determine their purchase from you.

By means of analytical and creative estimates, you will be converting jobs, which you might otherwise lose, into profitable business.

How do you estimate a job? Do you just pick up all the specs and plans, go to work and figure, or do you sit down first, scan the requirements, and then analyze? Do you first ask yourself these questions?

(1) Do I want to bid this job?

(2) Is it within my scope of size and experience? Is it the type of equipment on which I have built my business—package equipment—the erection type of installation—or a large engineering project?

(3) Is it the type of work on which I can make a profit?

(4) Are my chances of getting this job good, if my bid is right or if I am low bidder?

(5) Am I justified in spending the amount of money that it will cost me to estimate this job . . . in time, in travel, in overhead, in diversion of my efforts from my other business activities? Or, should I go out and put that money on a horse?

Remember, always, that whenever you make a bid, whenever you figure a job, whenever you provide an estimate to a customer, you are investing money.

If you do keep this investment factor in mind and your analysis tells you to proceed with the estimate and to spend your money on the chance of getting the work, then proceed . . . but with your eyes wide open and a prayer.

Before setting down any figures on
Continued on page 44

CHECK THIS LIST of vibration tips— and make your installations last longer

- ✓ It is unwise to put a solid sheet of cork, rubber or other material under a complete base.
- ✓ Don't neglect the overhang of the drive or the machine will rock.
- ✓ Avoid any isolator that is brittle.
- ✓ Use a material that won't soften in hot weather or harden in cold.
- ✓ Allowance for uneven distribution of weight is vitally important.
- ✓ A "lifeless" isolator is sure to pack and settle in time.
- ✓ Isolation material should not be too hard or too soft.
- ✓ Driver and driven should be mounted on a common rigid base before isolating.

Are you **SHAKING** y

NEARLY every piece of commercial refrigeration or air conditioning equipment in use today may show a reduction in *potential* service unless proper correctives are applied to offset the ultimately damaging effects of equipment vibration.

Today more than ever it is important for users of commercial refrigeration and air conditioning to get the most in "machine hours" out of their equipment. With replacement of some of this equipment becoming increasingly difficult, users can ill afford the possible 10% loss of potential energy and machine performance which can be occasioned through unchecked equipment vibration.

Reliable estimates based upon careful tests and studies reveal a somewhat surprising tally of "costs" due to vibration inherent to greater

or less degree in nearly every type of machinery used in commercial cooling today. Proper application of corrective procedures can bring greater all-around operating efficiency, greatly increase service output per machine, and reduce maintenance costs by minimizing the number of replacement parts required.

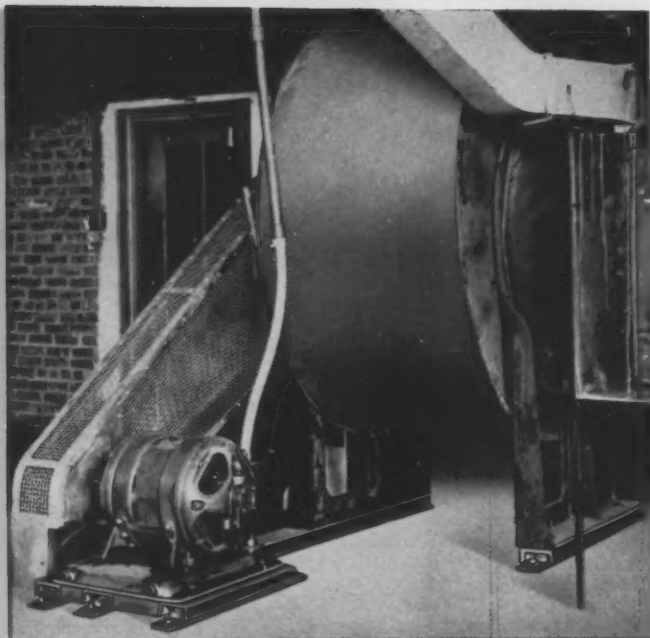
Such machinery vibration is, in effect, useful and usable energy. It finds its terminus in the foundation of the building on the ground below. The effect of this waste is to put a tremendous extra useless "load" on the machinery.

Generally speaking, because concrete, steel, and other building materials are all conductors of vibration, all mechanical equipment should be isolated. Properly planned isolation acts not only as a shield to prevent

vibration transmission to the foundation, floor, the building structure and surrounding equipment, but it also materially reduces dynamic bearing loads.

When any commercial refrigeration machine is rigidly mounted upon a solid support or foundation, vibration loads are added to the normal operating loads. These combined loads are frequently of such magnitude as to definitely increase the wear of moving parts. The cushioning effect of isolation permits all parts to operate freely, with a resulting reduction in wear.

Effective isolation is not the mere interposition of a resilient material or system. Incorrectly applied isolation may even aggravate the vibratory condition. To be of any value the isolation material or system must be



Typical integral vibration treatment for fan blower.

or equipment for a loss?

resilient under the condition of installation. This means that under the impact of operation it must have a certain predetermined action.

Briefly, if the isolation system is under-loaded it cannot be resilient. Its reaction will be the same as that of a solid mass, and it will transmit vibration.

At the other extreme, if the isolation system is overloaded, fatigue results, with a complete breakdown of the resiliency factors.

It is clear to the trained engineer, therefore, that the isolation material must be properly loaded for maximum isolation efficiency. Isolation cannot be purchased by measuring the base or foundation and ordering so many square feet. In practically every instance the isolation material will be definitely underloaded.

It is a well known fact in the machinery field that a blanket recommendation for isolating any and all types of machinery is impracticable. Yet, as has been pointed out, each job doesn't necessarily have to be a "tailored" one, thanks to improvements in modern methods of isolation.

The present wide selection of unit isolators brings to the machinery manufacturer or user a choice of vibration eliminators all designed to remedy that most common factor—"under-loading." Not only do these modern isolation units make it possible to "control" the load, but their installation is an extremely simple matter under proper supervision, based upon experience.

To a great extent rubber has become the basic factor in designing

and building the new range of vibration isolators which today can be adapted to meet any need. It should be remembered, however, that rubber does not have elasticity by *volume*. For this reason, rubber under compression evidences resiliency only by bulge around the edges, and is limited in use as a vibration eliminator.

However, the vibration isolation engineer today utilizes the full advantage of the natural elasticity of rubber by employing moulded rubber or rubber bonded to metal, both having cross sections that permit them to act freely in shear.

This same principle of rubber-in-shear has been used to develop a variety of unit isolators having provisions that permit bolting to a machine and also the supporting structure.

Continued on page 61

Uniform Low Temperature Control NIGHT or DAY ...the Year 'Round



Left: Locker room view of the Lewis Shoop plant at Sullivan, Illinois—another modern installation insulated with PALCO WOOL.



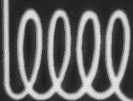
Requires the High Thermal Efficiency of PALCO WOOL

Low temperatures must be maintained at all times regardless of climatic variations throughout the day, month or year. This is absolutely essential to efficient and economical operation of cold storage and frozen food locker plants. PALCO WOOL Insulation—because of its low thermal conductivity—has enabled thousands of modern plants, like the Valley Cold Storage Company of Bakersfield, California, to realize continued savings in operating costs night and day, the year 'round. When planning new or expanded locker or cold storage plants, build your specifications around PALCO WOOL Insulation. Write today for the new Cold Storage Manual.



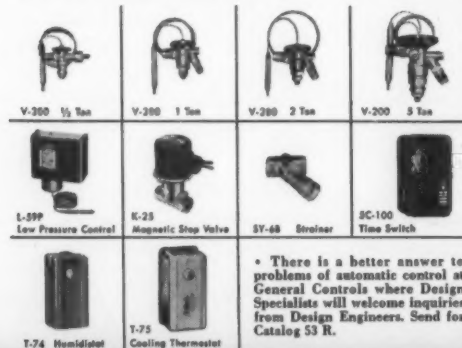
THE PACIFIC LUMBER COMPANY

100 Bush St., San Francisco 4, California
Chicago Los Angeles



for better
AUTOMATIC CONTROLS
better check
GENERAL CONTROLS

Thermal Expansion Valves... V-200 Series. For high or low temperature applications suitable for Freon, Methyl Chloride or Sulphur Dioxide. Non-adjustable, adjustable and super-heat models available. External equalizer available on 5-ton models.

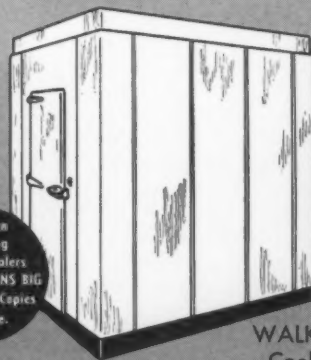


GENERAL CONTROLS

Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls

FACTORY BRANCHES: Baltimore 5, Birmingham 5, Boston 10, Buffalo 3, Chicago 5, Cleveland 15, Columbus 15, Dallas 2, Denver 4, Detroit 27, El Paso, Greenville 7, Houston 4, Indianapolis 4, Kansas City 7, Milwaukee 4, Minneapolis 2, Newark 4, New Orleans, New York 14, Omaha 3, Philadelphia 15, Pittsburgh 15, St. Louis 2, San Jose 4, San Francisco 7, Seattle 1, Tulsa 3, Washington 9, D. C. DISTRIBUTORS IN PRINCIPAL CITIES

Serving America's Finest Food Stores!



There's an interesting story for dealers in "Bally MEANS BIG BUSINESS". Copies available.

WALK-IN
Cooler

...ONE OF 62 DIFFERENT
BALLY MODELS and SIZES

Bally

REFRIGERATED DISPLAY CASES

Bally Case and Cooler Co., Bally, Pa.

NEWS OF THE INDUSTRY

HERE'S WHAT AN "OPENING DAY" CROWD LOOKS LIKE



OPENING DAY at the 7th All-Industry Refrigeration and Air Conditioning Exposition looked like this, a few minutes after the doors of Navy Pier were opened. This year's Show topped all previous ones in both attendance and number of exhibitors.

AIR-MAZE BUYS DETROIT FILTER CO.

The Air-Maze Corp., Cleveland, has purchased the Detroit Air Filter Co. of Woodstock, Ill.

Manufacture of "Detroit," "Arco" and "Dustay" filters will be continued at Woodstock. The filters are of the "throw-away" type and incorporate "wick action" as a method of holding more adhesive on the filter media.

"DETROIT" BUYS NEW FACTORY SITE

Detroit Lubricator Co. has purchased a 75-acre factory site on east Fifteen Mile Road at the intersection of the Michigan Central Railroad in Sterling Township, Macomb County, Mich., according to Charles H. Hodges, Jr., president.

Acquisition of this property will permit the expansion of the company's facilities, required not only by the steady growth in the

volume of existing business, but by the addition of new products.

Founded in 1877, next year will mark the company's 75th anniversary.

Detroit Lubricator manufactures automatic controls and specialized equipment for the refrigeration and heating industries, for the Diesel engine field and for many branches of the armed services.

Construction of the first of several units to be built on the new 75-acre site will be undertaken as soon as conditions permit.

FEDDERS TO MAKE UNITS FOR CROSELEY

The Crosley Div. of Avco Mfg. Corp. has announced that arrangements have been completed under which Fedders-Quigan will manufacture room air-conditioning units for Crosley.

John W. Craig, Avco vice president and Crosley

general manager, said the units would be produced to Crosley design and specifications at the Buffalo plant of Fedders-Quigan and be available for 1952.

MALONEY JOINS STAFF OF NPA

Acme Industries, Inc., has announced that the services of Joseph T. Maloney have been loaned to NPA for a period of six months to a year. Maloney will serve NPA as a commodity industry analyst, and will return to Acme upon completion of his work.

LYNCH OPENS NEW WESTERN OFFICE

Lynch Corp. has announced the opening of a new western division office and warehouse at 221 11th St., San Francisco. It will be managed by Cal B. Pierce, Par western division manager. Art Nielsen will be sales engineer.

SHOW ACCLAIMED AS BIGGEST, BEST EVER

Two days of dismal weather failed to keep the 7th All-Industry Show from being the biggest and best one the refrigeration and air conditioning field has ever experienced.

From every standpoint, this year's Show topped them all. Attendance reached more than 11,300, the highest ever recorded; number of exhibitors, 218, also was the largest on record.

The Show rode into Chicago on a blizzard, and it was expected that weather would keep the attendance down. Possibly it did, but after registration at the Navy Pier had hit 8000 in the first two days, there was little doubt that the ambitious hopes that went into the planning and staging of this year's exposition would be justified.

An informal poll of exhibitors indicated that this was a "buying" Show, to an even greater extent than in the past. Scores of new and improved products were introduced, and visitors represented virtually every state in the U.S., plus a large delegation from Canada, and representatives from several foreign lands, including Mexico, Central and South America, South Africa and Australia.

MARLEY OPENS WASHINGTON OFFICE

The Marley Co., Inc., manufacturers of Marley water cooling towers and air-cooled heat exchangers, opened a Washington, D. C. engineering service office on Nov. 1. The office is located in the Wyatt Building.

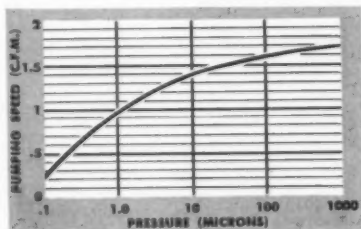
Don Cousins, formerly associated with the engineering and sales departments of the company in Kansas City, has been named manager of the Washington office.

THERE'S A LOT OF VACUUM IN THIS LITTLE PUMP!



Look at Kinney Vacuum Pump Model CVM 3153. It's small, yes — only about a foot high. It weighs only 70 lbs. complete with its $\frac{1}{4}$ HP motor.

Now take a look at its performance curve. See how it starts out with a free air displacement of 2 cu. ft. per min. See how large a percentage of its vacuum "pulling power" is retained right down to the less-than-1 micron zone.



This is what you buy when you get a Kinney Model CVM 3153 — HIGH PUMPING SPEED. And this is why so many laboratories, so many production operations, so many vacuum service and test jobs are depending on this new Kinney Vacuum Pump. Send coupon for complete details and price. KINNEY MANUFACTURING CO., Boston 30, Mass. Representatives in New York, Chicago, Cleveland, Philadelphia, Los Angeles, Houston, New Orleans, San Francisco, Seattle, and foreign countries.



KINNEY MANUFACTURING CO.
3618 Washington St., Boston 30, Mass.

Gentlemen:

Please send me Bulletin V31-A describing the New Kinney CVM 3153 Midget Vacuum Pump and price information.

Name _____

Company _____

Address _____

City _____

State _____

Circle No. 27 on Reader Service Card for more information
40

LOW TEMP EFFECT ON METALS STUDIED

More than 150 leading metallurgists and metallurgical engineers attended the Symposium on the Mechanical Properties of Metals at Low Temperatures held recently at the National Bureau of Standards in Washington, D. C.

Papers on recent research were presented by representatives of industry, universities and government. The program was under the joint chairmanship of Thomas G. Digges and George A. Ellinger of the NBS Metallurgy Division.

A knowledge of the mechanical behavior of metals at low temperatures is of vital importance to an understanding of their rheological properties and to their successful application in low-temperature service.

Engineering applications of metals at low temperatures are constantly increasing, as evidenced by the rapid growth of the refrigeration industries and the increasing demand for the liquefaction of many

gases, their transportation and storage.

Armed Services equipment—such as airplanes, other transportation vehicles, and weapons—frequently must operate at low temperatures. Embrittlement of metals in cold atmospheres is a source of concern to designers, manufacturers and users.

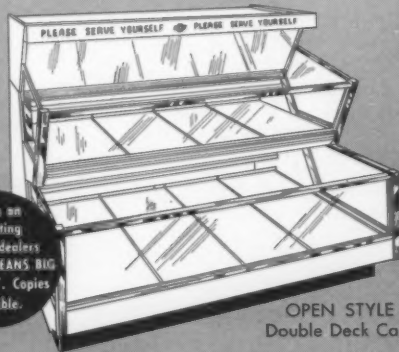
For several years the National Bureau of Standards has been conducting an extensive investigation of the influence of low temperatures on the mechanical properties of metals.

SUNROC GETS GOV'T COOLER CONTRACTS

Sunroc has been awarded three contracts by the Chicago office of the General Services Administration, Federal Supply Service.

The first contract is for more than 1,000 electric water coolers of several models for use in various sections of the country. Two other contracts awarded for water coolers were for 180 coolers and 35 coolers respectively.

Serving America's Finest Food Stores!



There's an interesting story for dealers in "Bally MEANS BIG BUSINESS". Copies available.

OPEN STYLE
Double Deck Case

...ONE OF 62 DIFFERENT
BALLY MODELS and SIZES

Bally

REFRIGERATED DISPLAY CASES
Bally Case and Cooler Co., Bally, Pa.

Circle No. 28 on Reader Service Card for more information
DECEMBER, 1951 • COMMERCIAL REFRIGERATION

THE BIG ONES DIDN'T GET AWAY!



The fishing expedition staged recently by Al Zumbrun, president of Brunner Mfg. Co., proved to be a resounding success. None of the four members of the party had ever fished for tuna before, yet in two days they came back with five fish weighing over 2400 pounds. Each man landed a fish with Host Zumbrun himself making the "bonus" catch. Posing with the biggest fish of the lot, which weighed 718 pounds and measured somewhat more than 10 feet in length, are (left to right) Harrison Sweet, a Brunner director; Zumbrun; Al Hunt of Boston; and William Cashin, Brunner's New England representative. The party fished off Ogunquit, near York, Me.

BIG INCREASE IN HOME COOLING SEEN

A forecast that more than 1,600,000 homes in America will be enjoying partial or complete air conditioning within the next five years was made by Cloud Wampler, president of Carrier Corp., at the opening of the new Environment Laboratory of the American Society of Heating and Ventilating Engineers in Cleveland.

Wampler pictured the new facilities as part of a challenge to a great industry. He urged still further expansion of fundamental research in both human comfort and efficiency.

Even a prediction of air conditioning in 1,600,000 American homes by 1956 had to be hedged against such factors as war and depression, Wampler said. He pointed out the great growth potential of the industry, however, by estimating there would be 45 million electrically-served homes in America by that time.

Lauren E. Seeley, president of ASHVE, presided at the opening luncheon. I. W. Cotton, chairman of the society's committee on re-

search, briefed those present on the new laboratory.

In his reference to air conditioned homes, Wampler said he included both room air conditioners in single and multiple installations and single-unit, year-round air conditioning systems handling an entire house. He predicted that the big strides made in complete home air conditioning in recent years would heavily influence the architectural design of homes.

From a shorter range viewpoint, Wampler asserted there is a real danger of a business depression in the not too distant future. "Ours is not a 'depression-proof' economy", he declared. Pointing at the present boom in plant expansion, he said that "what we have done is to borrow heavily from our future capital expenditure programs".

Wampler said his present estimate was that most or all 1952 would be a good year for business in general, but stated that before long the construction boom of the post-war and defense periods would begin to taper off.

Good to the last
Drip



Eastern hot CONDENSATE DISPOSAL UNIT



Automatically removes hot condensate from air conditioning units

This completely automatic unit disposes of hot liquid condensate at temperatures up to 200-210F. It's easily installed in air conditioning, or similar systems, where normal gravity drain-off is not possible. Quiet and reliable, it requires no oiling or maintenance during its long life. Low operating cost and rust proof construction make this compact and rugged unit a worthy investment in convenience. Complete catalog material on request.

SPECIFICATIONS

TANK: Capacity — Approximately 0.8 gallons. Brass with black enamel outside.

PUMP: Bronze centrifugal pump. Delivery approximately 4½ GPM at 0 PSI and shut off of 12½ PSI.

MOTOR: 1/40 HP, 3450 RPM, single phase, 60 cycles, 115 volt, totally enclosed, ball bearing, capacitor start motor.

WEIGHT: 23 pounds.

CONTROL: A switch, operated by a float, is so set that the pump will pump out approximately 0.4 gallons of condensate at each operation. A check valve built into the outlet prevents the outlet line draining back into the tank.

WIRING: The unit is provided with a knockout hole for attachment of BX Cable for the motor. All wiring is enclosed in unit.

Eastern INDUSTRIES, INC.
296 ELM STREET, NEW HAVEN, CONNECTICUT

Circle No. 29 on Reader Service Card for more information

RULINGS SHOW HOW EXCISE TAX WORKS

Rulings and interpretations on the application of excise taxes made by the Bureau of Internal Revenue in answer to specific questions passed along by REMA clarify some points that may have previously been in doubt.

The rulings relate to refrigerator electric wiring systems and testing cords; refrigerated display cases and walk-ins and reach-ins of over 25-cu. ft. capacity; condensing units; and replacement parts for room air conditioners.

In the case of electrical conduction assemblies and testing cords, it was the ruling of BIR officials that these do not come under the federal excise tax, since they are not considered taxable refrigerator components under section 3405 (b) of the Internal Revenue Code.

In the case of room air conditioners, the manufacturer's question had to do with "replacement parts", such as fan motors, power switches, starting capacitors, relays, fans, etc., and whether or not such replacement items were taxable separately.

The Bureau's ruling was that no Federal excise tax was applicable to the sales of such equipment if the parts are primarily designed and adapted for use as parts of air conditioning units.

On the subject of display cases and coolers, a manufacturer had asked for (1) a verification of his opinion that display cases of all types, plus walk-in and reach-in refrigerators of 25-cu. ft. capacity and over were not taxable, and (2) whether condensing units ranging from 1/4 to 1 hp for use in self-contained cases, were also exempt from excise tax.

The Bureau's ruling in this instance was that display cases and walk-in coolers are considered commercial cabinets, and hence not subject to Federal excise tax. Reach-in units, however, were held to be subject to specific examination (from a circular or catalog) before it could be stated definitely whether or not the tax applied.

In the case of condensing units for use with commercial cases, the statement

WHOLESALE'S NEW OFFICERS



NEW OFFICERS of the Refrigeration Equipment Wholesalers Association shown here were elected during the 16th annual meeting of REWA in Chicago during the All-Industry Show. Left to right are R. E. Warwick, Plumbing Supply Co., Jackson, Miss., treasurer; J. P. Glass, Chase Supply Co., Chicago, past president; N. K. Mason, Mason Supply Co., Columbus, Ohio, secretary; Ben Blazer, M. Blazer & Son, Passaic, N. J., vice president; and Fred Wilson, Standard Brass & Mfg. Co., Port Arthur, Tex., president.

by deputy commissioner Charles J. Valer was:

"It is provided under section 3405(b) of the Code that the tax shall not apply in the case of sales of such taxable refrigerator components by the manufacturer, producer, or importer to a manufacturer or producer of refrigerators, refrigerating or cooling apparatus, or quick-freeze units.

"The Bureau holds that in order to purchase refrigerator components tax free, the manufacturer thereof must be furnished with an exemption certificate, by the purchasing manufacturer who must deal directly with the manufacturer of the taxable components. There is no provision of existing law or regulations authorizing dealers or distributors to sell taxable components free of tax to a manufacturer of refrigerators.

However, no Federal excise tax applies to condensing units other than hermetic self-contained types of less than 1/4 hp."

It should be noted that this ruling was given prior to passage of the amended tax law which permits a parts wholesaler to sell taxable components to a manufacturer without paying the tax, provided the manufacturer furnishes an exemption certificate.

NORGREN SCHEDULES MOVE TO NEW PLANT

The C. A. Norgren Co., Denver, will move from its present location at 222 Santa Fe Drive to its new modern plant in Englewood on about Dec. 1, according to Carl A. Norgren, president. The moving date has been consolidated with the annual employees vacation period.

DOLE MEN MAP 1952 SALES PLANS



DOLE SALES REPRESENTATIVES from the United States and Canada held a sales meeting in Chicago at the time of the All-Industry Show, at which plans for 1952 merchandising were outlined and discussed. In the back row above, left to right, are: C. C. Ryan, G. Keeler, secretary to the president; R. J. Hermann, engineer; H. DeBaugh, engineer; J. Landwehr, research and design; L. V. Russell, A. F. Sawyer, R. J. Laubenheimer, M. Seese, R. L. Ballinger, H. E. Clay, J. E. Hutchinson, O. J. Armstrong, B. H. Clark, advertising counsel; B. P. Tweed, factory manager; H. Hansen, E. C. Wilbur, advertising manager; H. Hill, purchasing. Seated, left to right, are: L. E. Smith, sales manager; H. Kleist, vice president; A. W. Monroe, J. A. Wilkerson, D. DeMore, A. B. Brady, G. E. Nelson, and O. L. Rose, treasurer.

FRED WILSON NEW REWA PRESIDENT

Fred V. Wilson, of Standard Brass & Mfg. Co., Port Arthur, Tex., was elected president of Refrigeration Equipment Wholesalers Association at the 16th annual REWA meeting in the Sheraton Hotel during the All-Industry Show period.

Ben Blazer, of M. Blazer & Son, Passaic, N. J., was elected vice president; N. K. Mason, of Mason Supply Co., Columbus, Ohio, secretary; and R. E. Warwick, of Plumbing Supply Co., Jackson, Miss., treasurer.

Wilson succeeds J. P. Glass, of Chase Supply Co., Chicago, as president of REWA.

New REWA directors elected at the meeting are H. W. Welker, Jr., Hasco, Inc., Greensboro, N. C., who succeeds C. W. Eskridge, of Henry V. Dick & Co., Charlotte, N. C., as a director from Region 4; and R. W. Shepherdson, of Standard Supply, Worcester, Mass., named a director from Region 1 to succeed E. C. Marsden, of Marsden & Wassermann, Inc., Hartford, Conn.

UNITARY MARKET IS \$90-\$100 MILLION

Packaged air conditioning units have brought conditioned air to thousands of businesses which could not afford central station type installations. This is particularly true in cases where ductwork was not used and where the business property is rented, according to R. A. Johnson, former consulting engineer and now Milwaukee district representative for Airtemp Div., Chrysler Corp.

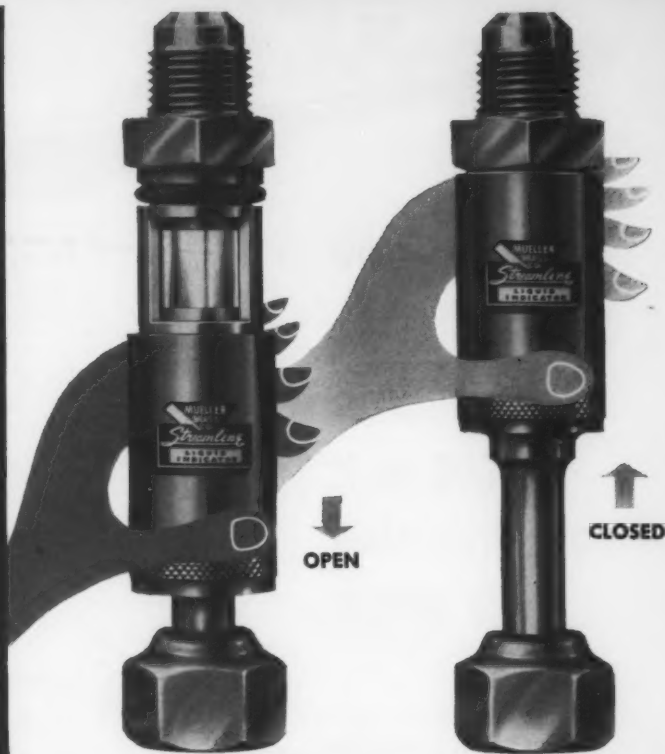
Speaking at a recent meeting of the Illinois Chapter, American Society of Heating and Ventilating Engineers, he defined room coolers as units of 1 1/2 hp and under and packaged conditioners as self contained units of 2 hp and over. He said that in 1948 approximately 45,000 room conditioners were sold. For 1950 the figure is 185,000 and sales for this year would probably be 300,000 to 400,000 if there were no shortages of material or other restrictions.

He reported a similar growth in the annual sales of packaged conditioners.

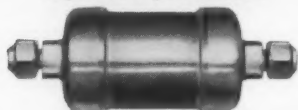
ANNOUNCING! A REVOLUTIONARY NEW LIQUID INDICATOR



sliding sleeve keeps new
Mueller Brass Co.
QUIK-SIGHT liquid indicator
clear and clean at all times



Have these **STREAMLINE** products on hand for every job where you want dependable performance.



DRIERS AND FILTERS



VALVES



FLARE FITTINGS



STREAMLINE refrigeration products are individual and multiple packaged for complete protection. Write for catalog R-151 describing complete line of **STREAMLINE** refrigeration products.

Just slide back the copper protective sleeve on the new Quik-Sight indicator and your refrigerant supply is instantly and clearly visible. Return the sleeve to closed position and the window is securely guarded against breakage. Two "O" rings in the assembly form a positive seal against dust, dirt and oil film when the sleeve is closed.

The revolutionary glass-to-metal soldering of Quik-Sight Indicators provides a thoroughly tight seal for any refrigerant, and eliminates need for gaskets and threaded joints that often work loose with vibration. Indicator design allows for thermal expansion through the whole assembly without strain.

Quik-Sight Liquid Indicators are easy to install. Wide wrench flats make it easy to get connections tight. The swivel connection on the flare end simplifies attachment to valves, driers or line because it eliminates all twisting strain on the indicator assembly during installation.

Quik-Sight Indicators are available in $\frac{1}{4}$ " M. Fl. x $\frac{1}{4}$ " Fem. Fl. and $\frac{3}{8}$ " M. Fl. x $\frac{3}{8}$ " Fem. Fl. There are **MUELLER BRASS CO.** Liquid Indicators to fit most installations. For complete information consult your refrigeration wholesaler or write to—

**STREAMLINE
PRODUCTS**

MUELLER BRASS CO. PORT HURON 12, MICHIGAN

Circle No. 30 on Reader Service Card for more information
and **AIR CONDITIONING • DECEMBER, 1951**

USE YOUR HEAD . . .

Continued from page 35

paper, read your specifications and study your prints. A visit to the job site is advisable, if possible, because many times short cuts can be found through visual analysis. The specs and prints should be read and studied not once but often . . . enough so that you are able to write an outline of them in your own words, without reference to the typed word.

Jot down a brief of the job, as it has been presented to you, showing the compressors needed, their sizes, the evaporators, type and kind of piping, approximate runs, controls, location of equipment, miscellaneous items, labor involved, method of operation, and so on. Add to this any other items which the engineering genius, who has drafted these plans to the best of his knowledge and experience, has given you.

Here's the Creative Part

Now you have come to the analytical and creative part. Sit back and dream a bit about this job. If you were going to lay out an installation to provide the things which are asked of you, would you create this identical job or would you add something, take something away, or create something new?

Do you, from your practical experience, training, and knowledge, think and feel that the prepared specifications give the best way to do this job, the most economical way for the results wanted? Or do you, after your analysis, feel that there is a better way, a more economical way, a lower operating cost way, or a way combining any of these?

If you do, then make another brief. This time, list your ideas on equipment, layout, method of operation. Add two more things . . . how the system will work . . . what the system will accomplish.

The cost of the job at this stage of your creation is not important. Don't stop with your ideas here, if your brain is fertile and you have a second, third, or fourth method. List each of them down in an outline form.

Then, analyze all of your brain children. The first may offer an advantage that the second does not, but the second may provide a flexibility not encountered in the first. Each

how S. S. UNITED STATES makes 48,000 cu. ft. of refrigeration space airtight

This huge passenger liner is assured of airtight refrigeration by the *special, patented construction* of the weatherstripping used on refrigerator doors . . . INNER-SEAL*.

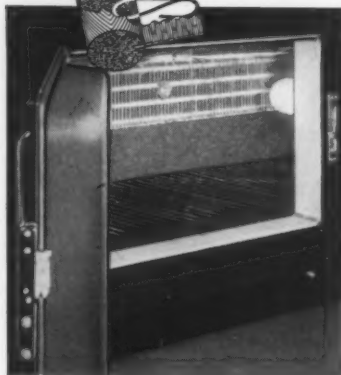
INNER-SEAL's made of *live sponge rubber*, which forms a perfectly tight, yet resilient, seal. Slam INNER-SEAL, it bounces back to shape. Does not mat. Will not crack. The *woven spring-wire flange* is so flexible it fits corners like a glove. Final protection is afforded by its waterproof neoprene coating which resists sub-zero or tropic temperatures, grease, oil, sunlight and abrasion.

From giant installations like the *S. S. United States* to a wide variety of industrial uses like refrigerated and other trucks, INNER-SEAL has no counterpart.

FREE samples . . . data on sizes, shapes, colors, scores of uses.

*Also used on gangway doors of this completely air-conditioned ship.

S. S. United States
... largest ship ever built in the U. S., third largest in the world. Built at Newport News Shipbuilding and Dry Dock Co., Newport News, Va. Launched June 23, 1951. Length overall . . . 990 ft, gross tonnage . . . 51,500, total cargo capacity . . . 148,000 cu. ft.



Cold is efficiently sealed in by INNER-SEAL on all hinged doors of Commodore commercial refrigerator cases made by Warren Company, Atlanta, Georgia.

STROBOSCOPE OF "JUMP TEST" PROVES INNER-SEAL SEALS TIGHTER, LASTS LONGER!

Springy live rubber is the reason. Action-stopping stroboscopic photos prove it. Both ends of a strip were pressed together, then released . . . resulting in the lively spring action you see.



INNER-SEAL

WEATHERSTRIPPING

Live Rubber

STAYS LIVELIER LONGER... SAVES MORE FUEL

BRIDGEPORT FABRICS, INC., BRIDGEPORT 1, CONN.

Circle No. 31 on Reader Service Card for more information

will have its distinction.

Don't stop here; but analyze further. Consider the type of service to which this installation will be put. Look into the hours during which the equipment will be operated, the seasons, the locality. Consider that you are the customer and create in your mind the kind of flexible operation which you as the customer will want.

Then, and not until then, can you determine which of the various methods which you have listed should be the one to be installed. When you do this, you will truly create the installation which will appeal to and satisfy your user.

Thinking a job through and offering to your customer alternates, one of which will suit his purpose best, is the way to create business for you and a satisfied customer for your organization.

Creative Estimating Pays Off

Your customer will realize, from the presentation of these alternates, that you have given his needs the creative thinking and the all-around analysis for his good that will result in the best job for him. His respect for you will be increased and you will command his attention to the engineering which you have created and furnished for him.

On this analytical and creative estimate which you submit you can ask for and receive a better markup than is the case on the specified job on which most of your competitors will bid. Your bid will be in accordance with the specifications and plans, of course, but your alternate estimates . . . tailor-made installations to suit the user's exact needs . . . will lift you head and shoulders above your competitors.

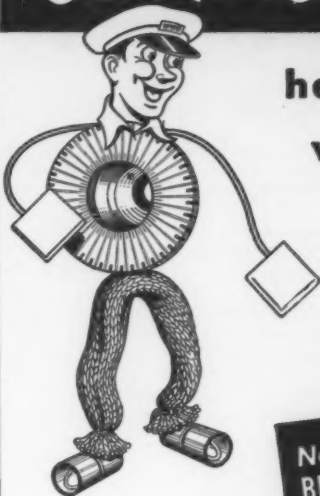
This analytical and creative method of estimating will pay off in increased contract awards and profits.

YORK CITED FOR AID TO HANDICAPPED

York Corp. has been cited for a merit award by the President's Committee for National Employ the Physically Handicapped Week, according to Leroy W. Gohn, manager of the Pennsylvania State Employment Service.

In order to get consideration for an award, national rules require that at least 5% of a concern's total working force be handicapped workers.

Genuine Joe says:



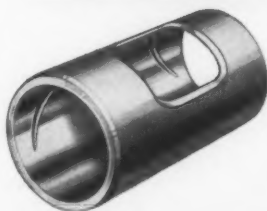
here's a better
way to install
the best
motor bearings*



This tool enables you to remove worn sleeve bearings and install genuine Wagner bearings in *one* easy operation. No hammering . . . no reaming . . . no spoilage! You get perfect alignment every time. Order yours today — use the coupon below.



*** Wagner bearings are BEST!**



These precision-bored, 87% tin babbitt-lined bearings are best because they have:

- 1 Extreme load-carrying capacity.
- 2 Excellent anti-seizure properties.
- 3 High resistance to corrosion by acids present in oils.

WAGNER ELECTRIC CORPORATION • 6400 Plymouth Ave., St. Louis 14, Mo.

Please ship the following bearing tools:

Quantity	Tool No.	Fin. Brg. Size	List Ea.
	SA-846	.655"	\$3.03
	SA-860	.751"	3.15
	SA-847	.812"	3.63
	SA-848	1.062"	4.48

NAME _____

ADDRESS _____

CITY _____

STATE _____

WAGNER ELECTRIC CORPORATION
6442 Plymouth Ave., St. Louis 14, Mo., U. S. A.

MOTORS • BEARINGS • STANDARD ROTORS
BRUSHES • CAPACITORS • COMMUTATORS

650 AUTHORIZED SERVICE STATIONS
OR PARTS DISTRIBUTORS

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3307 Popular Triple

Federal

the complete line
for every refrigeration
need . . .

- the name that's known all over the nation.
- smartly designed, for efficient performance.
- pioneers in refrigeration.

Write today for available
Federal DEALER TERRITORIES.

FEDERAL REFRIGERATOR
MANUFACTURING CO.
WAUKESHA, WISCONSIN

Federal

REFRIGERATORS

Buy Peerless

FOR PERFORMANCE

FORCED
AIR
COOLERS
OF ALL
TYPES



Unit • Dome • Panel
Corner • Pie Plate

Whenever you think of forced air coolers—regardless of type—think first of PEERLESS! We manufacture coolers for an almost endless variety of uses: Unit, Dome, Panel, Corner Unit, and Pie Plate (round coil) types. Each Peerless Cooler combines functional design, proved quality and life-time superiority of performance. Low operating cost, simplicity of installation and ease of servicing characterize the complete line of PEERLESS Coolers. Write today for complete information.

Peerless of America, Inc.

1501 No. Magnolia Avenue
Chicago 22, Illinois, U.S.A.

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USEFUL

BULLETINS • BOOKLETS • CATALOGS

The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

Controls . . . A complete line of automatic controls for refrigeration and air conditioning applications is covered in this 20-page catalog (53-R) issued by General Controls Co. Pertinent application data as well as detailed specifications are provided for each type of unit. A page of engineering data includes tables on temperature conversion factors, temperature-pressure relations, pressure control settings, and solenoid electrical ratings.

Circle No. 100 on Reader Service Card

Masonry Drills . . . A pocket-size folder describing and illustrating the "Speed Spiral" line of masonry drills. Features are fully described and kits of various drill combinations are shown. Complete specifications and price of each size drill are given. Available from Super Tool Co.

Circle No. 101 on Reader Service Card

Cooling Towers . . . A complete line of cooling towers, air cooled heat exchangers, accessories and other specialized equipment is covered by this 4-page catalog insert issued by J. F. Pritchard & Co. Each product is illustrated and briefly described.

Circle No. 102 on Reader Service Card

Pipe Coils . . . Various styles of pipe coils are covered by a brochure (No. 26-B) just issued by Acme Industries, Inc. Such types as spiral, rectangular, flat, oval, and double coils are illustrated and general specifications are listed. Selection procedure is outlined and tables of technical information on dimensions, bending data, and heat transfer coefficients in still and circulating water and air are provided.

Circle No. 103 on Reader Service Card

Velocity-Power Driver . . . A tool powered by a blank cartridge and designed for driving steel studs into steel, masonry, or concrete without drilling, plugging, or anchoring, is illustrated and described in this 4-page bulletin (T-18) available from Velocity Power Tool Co. Construction of the tool is diagrammed and integral cartridge assembly is explained in detail.

Circle No. 104 on Reader Service Card

Volt Ammeter . . . A pocket size manual of actual case histories describing how servicemen have simplified their electrical testing problems by using the "Amprobe" snap-around volt-ammeter has been published by Pyramid Instrument Corp. This 16-page booklet (No. 504) entitled "Servicing with the Amprobe" cites actual experiences to show how use of this equipment can save time and effort in locating electrical troubles without shut-down of operating equipment.

Circle No. 105 on Reader Service Card

Silver Brazing . . . "Complete Guide to Successful Silver Brazing" is the title of this 48-page pocket-size manual which endeavors to treat all aspects of brazing applications and problems in a basic and understandable manner. More than 50 drawings and charts are used to illustrate the text. Provides correct answers on low temperature brazing, brazing alloys, joint design, fluxing, heating methods, cleaning and inspection. Available from American Platinum Works.

Circle No. 106 on Reader Service Card

Condenser Fans . . . Wiring instructions for replacement fans and relays are provided in detail in this leaflet made available by Airserco Mfg. Co. Service hints also are included. Specifications are provided on the company's line of hermetic condenser fans and fan assemblies.

Circle No. 107 on Reader Service Card

Air Handling . . . Equipment for air conditioning, air handling, and air cleaning is described in considerable detail in this 16-page condensed full-line catalog (B-5164) issued by Sturtevant Div., Westinghouse Electric Corp. Features and specifications of each type of equipment is amplified by how-it-works and how-to-use-it information.

Circle No. 108 on Reader Service Card

Freezers . . . New four-page freezer catalog depicting the complete line of Steinhart freezers, both deluxe and lower-priced models, and including specifications, test results and features. Emphasis on "Dutch Freezer Plate" feature of units.

Circle No. 109 on Reader Service Card

Now! From **Kelvinator**...



THIS BROAD COVERAGE PROVES KELVINATOR'S CONFIDENCE IN PRODUCT QUALITY

You can see that Kelvinator's 5-year Warranty is a powerful feature . . . giving coverage that condensing unit buyers have always wanted! The cost? Only—

\$5.00 (for nominal 1/2 h.p. and smaller)

\$7.00 (for nominal 1/2 h.p.)

For additional Warranty Information—phone, write or call on your local Kelvinator Distributor or Zone.

New **5-YEAR** WARRANTY!

**On Commercial Sealed Units
Purchased Through Kelvinator
Distributors and Zones!**

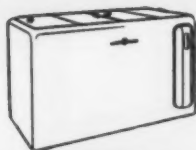
**SURPASSED BY NONE
IN THE INDUSTRY!**

- ★ 5-Year Warranty on **ENTIRE UNIT** —**INCLUDING FAN MOTOR!** (excepting relay and capacitor)
- ★ Easy to administer—factory does all record-keeping! (dealer simply sends in card at time of installation)
- ★ Maximum flexibility! Warranty can be purchased **WITH** the unit—or later—when the unit is installed!
- ★ Replacement unit can be obtained from any Kelvinator Distributor Zone—it does not have to be obtained from original point of purchase!
- ★ Coverage for **FIVE FULL YEARS** . . . at low cost!
- ★ All freight on the **REPLACEMENT** unit as well as on the **INOPERATIVE** unit is **PAID BY KELVINATOR!**
- ★ 5-year warranty is optional . . . units purchased *without*, carry one-year warranty.

PROFIT TODAY...BUILD FOR TOMORROW WITH

Kelvinator

THE NAME THAT SELLS...THE NAME THAT SATISFIES!



**KELVINATOR
BEVERAGE COOLERS**



**KELVINATOR FROZEN
FOOD MERCHANDISERS**



**KELVINATOR
WATER COOLERS**



**KELVINATOR
ICE CREAM CABINETS**



**KELVINATOR
AIR DRIERS**

Circle No. 35 on Reader Service Card for more information
and **AIR CONDITIONING • DECEMBER, 1951**

NEW

PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

Ice Cuber

Product: "Scotsman" automatic ice cubing machine.

Manufacturer: American Gas Machine Co., Albert Lea, Minn.

Features: Low cost operation—about 15 cents per hundred pounds



of cubes. Cubes are round, solid, and crystal clear. They store perfectly without sticking together. Completely automatic operation keeps heavily insulated storage bin full of cubes at all times. Freezing takes place under constant agitation. 69 cubes frozen separately at one time and are then released into bin by flow of fresh water. No cutting mechanism required. Cabinet fits under any bar, being only 35 inches in height. Equipped with 1/2-hp hermetically sealed compressor. Front grille quickly removed for easy access to all controls. Compressor slides out for easy cleaning and servicing.

Circle No. 130 on Reader Service Card

Scale Remover

Product: "Solvex" chemical agent in tablet or granular form for removal of rust, scale, algae, and other matter from air conditioning and refrigeration systems and preventing further accumulations of such matter.

Manufacturer: Chemical Solvent Co., Birmingham, Ala.

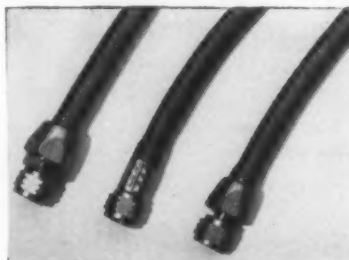
Features: Easy and safe to handle. Reduces high head pressure and stops over-heating within a few hours. Can be applied without disconnecting a pipe or breaking a joint. Removes rust, scale, algae, oil and other incrusting matter from condenser tubes and compressor water jacket in one to five days. Kills algae in ponds and cooling towers and tanks. Gives relief without shutting plant down. Action begins the moment it is applied to the system. One type of tablet cleans the system, another keeps it clean.

Circle No. 131 on Reader Service Card

Hose Assemblies

Product: Three new hose assemblies for the beverage dispensing industry.

Manufacturer: Hedeman Products, Inc., Great Neck, N. Y.



Features: Designed after considerable research among manufacturing and maintenance organizations in the beverage vending field to fulfill component part requirements and on-the-spot assembly needs. These new assemblies are simpler to install and, when used with Koroseal tubing armored with stainless steel braid they use less critical materials. Three assemblies are: hi-pressure compression assembly, hi-pressure crimp collar assembly, and self locking collar assembly. The first two are designed for high or low pressure applications, while the third is intended for

low pressure applications only. All three are available in cut-to-length, ready-to-install assemblies or with separate fittings and flexible Koroseal in reels or specified lengths.

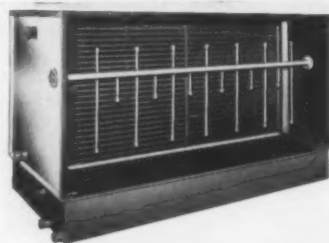
Circle No. 132 on Reader Service Card

Dehumidifiers

Product: A line of sprayed coil dehumidifiers.

Manufacturer: Kennard Corp., St. Louis, Mo.

Features: Available in a large



number of sizes. Made of galvanized construction with copper tube and copper finned coils for long life. Offer advantage of washed air at all times plus wetted surface of cooling coil for better heat transfer and closer dry bulb-wet bulb approach. Unit also suited for use as an evaporative cooler for off-season loads.

Circle No. 133 on Reader Service Card

Display Table

Product: Model F insulated but non-refrigerated end and aisle display for perishable goods.

Manufacturer: Institutional Sales, Philadelphia, Pa.

Features: Can be used wet, dry,



or with ice. Welded water-tight aluminum pan on sturdy water resistant



Chase Copper Refrigerator Service Tube ($\frac{1}{8}$ " to $\frac{3}{4}$ " diameter) comes in this handy new package . . . makes it easy to use, store, identify and ship.

...Because It's CHASE COPPER REFRIGERATOR SERVICE TUBE

You, too, will prefer Chase Copper Refrigerator Service Tube—from the first time you use it! You'll find it easy to work because it's soft . . . easy to bend because of its uniform temper. Controlled annealing means tube that is clean, bright, oxide-free.

The new Chase end seal keeps it clean and dry inside. Made in $\frac{1}{8}$ " to $\frac{3}{4}$ " diameters and standard 50' lengths.

Chase BRASS & COPPER

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION



• The Nation's Headquarters for Brass & Copper

Albany†	Cleveland	Kansas City, Mo.	New York	San Francisco
Atlanta	Dallas	Los Angeles	Philadelphia	Seattle
Baltimore	Denver†	Milwaukee	Pittsburgh	Waterbury
Boston	Detroit	Minneapolis	Pittsburgh	
Chicago	Houston†	Newark	Rochester†	(†sales office only)
Cincinnati	Indianapolis	New Orleans	St. Louis	

Circle No. 36 on Reader Service Card for more information
and AIR CONDITIONING • DECEMBER, 1951

frame with white Marlite and metal mouldings. Insulated with Fiberglas. Has pitch and cut-off valve for easy drainage. Overall dimensions are 48 x 24 x 31½ inches.

Circle No. 134 on Reader Service Card

Upright Freezer

Product: Model UF-15 upright freezer.

Manufacturer: Jordon Refrigerator Co., Philadelphia, Pa.

Features: Upright, reach-in type freezer for home and commercial use.

Measures 72 inches high, 40 inches wide, and 31 inches deep. Total storage capacity of 15 cu. ft. or approximately 500 pounds of food. In addition, a quick-freezing ice cube tray shelf is supplied as standard equipment. Engineered with freezer plate shelves so that every food package is either in direct contact with freezer surface or in close proximity to it. Insulated with 6-inch blanket of Fiberglas, unbroken by wooden frame or other non-insulating material. Refrigerated by hermetically sealed unit.

Circle No. 135 on Reader Service Card

Gauge Glass

Product: New "Gage-Tite" gauge glass.

Manufacturer: E. F. Vilter Co., Milwaukee, Wis.

Features: Can be installed as part of the unit or in the field, as it has soft copper tubing that may be sweated or flared. Perfect seal as-



sures a positively sealed gauge free from any chance of leakage. Accurately and clearly shows liquid level at all times. Constructed of brass and copper, using a Pyrex glass. Head contains ball checks, in case of accidental breakage. Pyrex glass is sealed to bellows with silver bearing solder. Bellows absorb expansion and strain on glass. Plugs at ends permit cleaning of glass if necessary. Connecting tubes sealed to keep out dirt and moisture. Overall height is 6½ inches; useful glass length is 3¾ inches. ¼-inch copper tubing connections are 4¼ inches long. Each unit tested to assure long trouble-free service.

Circle No. 136 on Reader Service Card

Frozen Food Case

Product: Model SG-20 low temperature case for frozen foods.

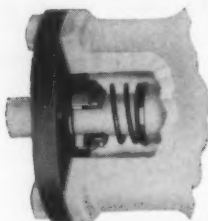
Manufacturer: Ace Cabinet Corp., New York, N. Y.

Features: Will hold 870 standard packages of frozen foods. Easily accessible for fast self-service traffic.

ROTARY SEAL

Replacement Units

- ✓ Simple in Construction
- ✓ Easy to Install
- ✓ Efficient in Operation
- ✓ Economical



Unit No. 4120

AVAILABLE FOR
MORE THAN
900
COMPRESSOR
MODELS

For Commercial, Semi-Commercial, Air Conditioning, and Household Refrigerator Compressors....over 20 years of performance proof....Units available for all standard makes.

AT
ALL

THE
mechanical
seals for

LEADING
JOBBER

"Seal with



Certainty!"

2020 NORTH LARRABEE STREET
CHICAGO 14, ILLINOIS, U.S.A.
CANADIAN AGENT: 2025 ADDINGTON AVENUE
MONTREAL 28, QUEBEC, CANADA

Circle No. 37 on Reader Service Card for more information

Two doors of double durable Thermopane can be removed during rush hours. Condensing unit is hermeti-



cally sealed, and slides out for easy cleaning or service. Superstructure furnished with three-dimensional pictures, product strips and prices. Dimensions without superstructure are approximately 30 inches wide, 30 inches high, and 80 inches long. Superstructure height is 22 inches.

Circle No. 137 on Reader Service Card

Remote Thermometer

Product: "Airguide" remote-reading thermometer for visual check of freezer temperatures without opening cabinet.

Manufacturer: Fee & Stemwedel, Inc., Chicago, Ill.

Features: Mounted outside freezer



at any convenient location. Attractive blue and white zone-type scale permits easy reading. Sensitive capillary bulb hangs inside of freezer and is connected with thermometer unit outside by means of small capillary tube which rests on edge of opening but does not prevent tight closing of lid.

Circle No. 138 on Reader Service Card

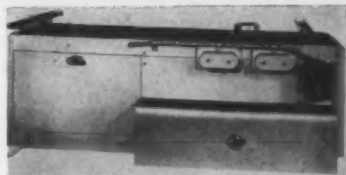
Horizontal Furnace

Product: Automatic gas-fired horizontal-type furnace.

Manufacturer: Airtemp Div., Chrysler Corp., Dayton, Ohio.

Features: Available in three models with input capacities of 60,000, 80,000, and 100,000 Btu per hour. Can be used with natural, manufactured, or LP gas. A packaged unit, it is shipped completely assembled, thereby eliminating on-the-job assembly and expensive installation cost. All accessories and controls, except

the thermostat, are mounted and electric wiring and gas piping are completed to casing outlets. Installation can be made under the floor, in an



attic, in an ordinary basement, or suspended in a utility room. Installation

Norgren

CO₂ REGULATORS

Proved best for

- trouble-free performance
- longer service
- satisfied customers

For SUPERIOR PERFORMANCE—hot or cold beverages—from cup vending machines, soda fountains, and beer dispensing equipment, standardize on NORGREN CO₂ REGULATORS. Their superiority has been soundly proved by the thousands of Norgren CO₂ Regulators that have been giving satisfactory service year after year. Here are a few reasons why:

- Performance equals most two-stage regulators.
- Positive delivery of correct volume and pressure of CO₂ gas from supply tank.
- Hold working pressure *without creep* as tank pressure drops.
- Exclusive ball-pivoting lower spring rest for permanently friction-free operation.
- Wool felt filter permits only clean gas to enter regulator.
- Completely and easily dismantled without removal from tank.
- Reduce tank pressures of 1,000 to 3,000 p.s.i. to working pressures from 5 to 175 p.s.i.
- Listed by Underwriters' Laboratories, Inc.

Write for full descriptive literature. C. A. Norgren Co.,
3441 So. Elati, Englewood, Colo.

25th Year of Progress

Norgren



Lubricators, Regulators, Filters,
Relief Valves, Check Valves,
Air Governors, Needle Valves,
Hose Assemblies and Couplings.

25 YEARS OF HELPING AIR POWER SERVE INDUSTRY BETTER

Circle No. 38 on Reader Service Card for more information

further eased by flue outlets on each side of furnace, mounts on either side for draft diverter, and hanger brackets which serve for overhead suspension, or which may be placed on bottom for base setting. Welded heavy gauge steel heat exchanger, milled slot burners with single screw air adjustment which prevents clogging and assures instantaneous ignition, fully enclosed controls which can be mounted on either side of cabinet, and centrifugal type blower.

Circle No. 139 on Reader Service Card

Liquid Flow Indicator

Product: E-Z-See liquid "flo-indicator".

Manufacturer: Remco, Inc., Zelienople, Pa.

Features: Adds great utility to liquid indicator by enabling service engineer to visually determine the actual flow of liquid refrigerant to the expansion valve or other metering device. Indicates all fluctuations in liquid flow, so serviceman can actually see the action of the expansion valve and therefore can tell whether

or not it is functioning properly. Still makes readily visible the bubbles, indicating either a shortage or a restriction or both. In the absence of bubbles, it indicates flow to assist serviceman in diagnosing troubles in the system. Indicator visible through sight glass shows direction of flow as well as indicating whether or not liquid is flowing.

Circle No. 140 on Reader Service Card

Dry Bottle Cooler

Product: Under-counter dry service bottle cooler.

Manufacturer: United Refrigerator Co., Hudson, Wis.

Features: Designed for installa-



tion where height is at a premium but where quality and top performance are in demand. Combine same fabrication and design features of other models in United line. Measures only 33 inches high and is available in both 6 and 8-foot lengths.

Circle No. 141 on Reader Service Card

Special Low-Temp Case

Product: Model OT-48 Special frozen food and ice cream display case.

Manufacturer: Howard Refrigerator Co., Inc., Philadelphia, Pa.

Features: Moderately priced case



with space for large display posters. Equipped with hinged back-board



"Marsh meets our needs supremely well"



Type WP Marsh-Electrimatic Condenser Water Regulator. It now has manual flushing feature—just push down pin and flush out all dirt and grit.

With bodies machined from solid bar brass stock, Marsh-Electrimatic Solenoid Valves give new meaning to dependability.



Something far better in testing gauges—for the man who wants the ultimate in quality and accuracy.

An old-established, highly respected wholesaler up in Minneapolis is busy Refrigeration & Industrial Supply Company. Two men who have contributed greatly to the success of this firm are Frank R. Pond and Les A. Ost. Mr. Pond (at the right in the picture above) is president of Refrigeration & Industrial Supply Company, and Mr. Ost (in the center) is buyer. Of course the fellow at the left, with the look of modest satisfaction becoming a well-received salesman, is the Marsh man, Ray Dinham.

Frank Pond and Les Ost are trained by long experience to sense the quality and salability of refrigeration equipment. "Marsh products are in steady demand," said Mr. Pond, "because they meet our customers' needs supremely well."

Refrigeration & Industrial Supply Company is typical of progressive wholesalers in every industrial center who handle the full line of Marsh refrigeration specialties. See the new Marsh developments—the new testing gauges, the testing thermometers, and the new Marsh-Electrimatic solenoid valves and condenser water regulators.

See your jobber

MARSH INSTRUMENT CO.

Sales affiliate of Jos. P. Marsh Corporation
Dept. P, Skokie, Ill.

MARSH

Refrigeration Instruments

Circle No. 39 on Reader Service Card for more information

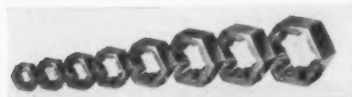
cover which serves as a night cover as well as providing ideal space for product features and price tickets. Case has 9 cu. ft. capacity and holds 275 to 300 frozen food packages. All walls and partitions are 100% refrigerated. Casters are standard equipment. Case is self contained and is powered by a ¼-hp Tecumseh sealed unit.

Circle No. 142 on Reader Service Card

Thread Restorer Set

Product: No. TR7 thread restorer set.

Manufacturer: Bonney Forge & Tool Works, Allentown, Pa.



Features: Simplifies re-chasing battered or damaged threads. Set consists of eight sizes of restorers, ranging from a bolt diameter of ¼-inch with 28 threads per inch to a ¾-inch bolt diameter with 16 threads per inch.

Circle No. 143 on Reader Service Card

Cold Storage Door

Product: Flexible, shock absorbent rubber door for cold storage warehouses and similar applications.

Manufacturer: Stic-Klip Mfg. Co., Cambridge, Mass.

Features: Swinging rubber door is so light and flexible it can be bent



to a right angle. Designed to eliminate damage and costly maintenance of conventional doors caused by power trucks and similar conveying equipment banging into the doors to

open them. Swings open at a touch, absorbing shock of trucks, then returns to its normal closed position. Door actually is a reinforced rubber air container, constructed of an outer layer of heavy cloth inserted rubber which covers a "frame" of 2-inch rubber tubing. Support and resiliency are provided by 15 to 25 inflated rubber bladders. These bladders, running cross-wise inside the rubber facing, are positioned between the rubber spacers, and are inflated by hand pump through protruding valves. Door has high insulation

value yet so little inertia that the pressure of one finger opens it. Suspended on hinges attached to steel strips running along one side. Weighs about ½ weight of conventional door. Windows can be placed where desired.

Circle No. 144 on Reader Service Card

Ralston B. Reid has been appointed an assistant manager of the advertising and sales promotion department of General Electric Co.'s Apparatus Marketing Division.



Gilmer #355 V-Belt Assortment



**GOOD PROFITS
FROM
SMALL SPACE...
MINIMUM STOCK**

V-Belt business is profitable—easy to handle—the low-investment Gilmer way! Start with Gilmer #355 V-Belt Assortment. Contains 50 hard-pulling, firm-gripping, highly flexible belts—31 of the most popular sizes.

Gilmer V-Belts are built for hard service and long wear. Rayon pulling cords add strength, assure closely-controlled stretch. Long-life rubber cushion withstands heat. Tough jackets resist effects of air, gases, moisture, oil, dirt.

**BUY THROUGH YOUR
GILMER DISTRIBUTOR**

L. H. GILMER COMPANY

1206 Tacony, Philadelphia 35, Pa.

Division of United States Rubber Company

Circle No. 40 on Reader Service Card for more information



**YOU GET THESE GILMER
SERVICE AIDS FREE**

- 8-hook, sturdy metal Belt Rack for store, shop or truck
- Patented Gilmer Handimeter for correct, fast belt measuring
- Gilmer V-Belt Catalog—"America's Belt Bible"
- Practical Gilmer Inventory Card to save stock-keeping work
- Window Display Card that tells customers to BUY IT HERE—NOW!

For high insulating and adhesive qualities, use GILMER TAPE. Fuses readily without heat. Straight-tearing, non-raveling. In special shop-size containers.

SALES SUPERVISION . . .

Continued from page 29

ment, dairy department, frozen food section, etc. Thus, when a concentrated drive is made on a specific piece of equipment in our line we are able immediately to pull a list of stores where our men can start to tell our story of why this particular store should have that particular type of equipment.

In this way, our men can have

their attack all planned before going in to see the prospect.

We also find our men evaluating the customer's present equipment when taking this inventory, as this assists them in knowing what points to stress on future calls. Certainly it is harder to sell a potential customer a section or two of open dairy case when he might have a sliding door reach-in or wall type box only a year or so old.

All these facts are available to our men from their copies of the reports they turn in.

Under this same heading we show the letters "S. C." Circling these letters indicates that the customer has a service contract with our company. If these initials are not circled, it is assumed that our salesman has explained to the customer our yearly maintenance contract policy. We take this for granted, inasmuch as each salesman is given weekly proof through earning figures that credits on service contracts will more than offset his weekly expenses.

Equipment Needs Itemized

Our report form then asks what equipment is needed by each potential customer. This is still another form of supervision, as we spot check certain reports by asking a salesman why he thought this particular store could use the equipment mentioned. We do this just to ascertain whether he was actually trying to help the customer increase his dollar profit or was just writing down something to fill in the space.

The call report form then provides a space under "Remarks" where the salesman is expected to write a few words describing the owner, buyer, or potential of the store, or any other comments he may think pertinent.

This space is also used for reporting service troubles, and requests for work to be performed by our installation or service departments. Here also go any leads for air conditioning, ice makers, or other products that can be passed on to the salesman in the other departments of our company.

10 Top Prospects Listed

Last but not least is a portion called "Salesman's Request To Office". This provides an opportunity for the salesman to mention any pieces of literature which he thinks the office should mail to certain prospects. In so doing he also suggests specific dates on which such literature should be sent so that he can properly coordinate his own follow-up efforts.

If the date is somewhat distant, such as when a prospect wants to wait until the following season, the salesman can ask the office to remind him when the time comes to follow up the mailing.

It is an absolute "must" that these call reports be mailed to the office every day. Then at each Friday sales meeting every salesman is required

for all water cooling -- use *Filtrine* —sell more condensing units

"DO" Orders are Vital!

For all Federal Agencies . . . All Armed Services . . .
Filtrine products meet government specifications.

Promote your own condensing unit sales with Filtrine's
20-year-life construction . . . high capacity . . . Super
Storage . . . more than 40 years' dependability.

COOLERS FOR MESS HALLS — CAFETERIAS



Tast-Master

Sell your condensing unit with Filtrine Stainless Steel or Duco finished cabinets, equipped to suit with top/side shelves, bubblers, glass-fillers. Can be Taste-Master equipped to remove chlorine, rust, sediment from water.



MC-14-S

MC-43-S

MC-25-S

MC-10-S

COOLERS FOR X-RAY & PHOTOGRAPHY

Sell your condensing unit with Filtrine models repeatedly named by V.A., Signal Corps, Air Force, etc. for X-ray, and photo-labs. Under counter design and floor-mounted models with stainless steel work-table top. Filters (extra) to prevent scratched and pin-holed negatives.



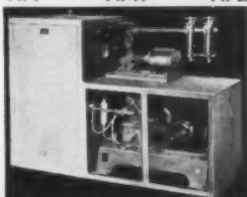
PH-7

PH-14

PH-25

PACKAGED CIRCULATING CHILLED WATER SYSTEMS

Sell your condensing unit! Systems for drinking or processing water—completely packaged with pump, controls, your condensing unit factory installed. Capacities 5—400 g.p.h.; storage 5—150 gals. Filters and Rectifier-Dechlorinators (extra) to insure taste-free, sparkling water.



Typical "Packaged"
Circulating Chilled Water System

REMOTE COOLERS

Sell your condensing unit with remote models for new and replacement jobs—all applications. Capacities 10—1000 g.p.h.; storage 7—300 gals. Filters, Rectifier-Dechlorinators available for all sizes.



Remote Model Coolers

Get our new "How to Sell DO Jobs" —write Dept. RF2



FILTRINE MANUFACTURING COMPANY • BROOKLYN 5 • N. Y.

"Water Coolers and Filters for 40 Years"

Circle No. 41 on Reader Service Card for more information

to submit a list of ten potential customers that in his opinion are "hottest prospects". It is on the basis of these lists that the sales manager sets up his plans for working with each man during the coming week.

It is possible, for instance, that the sales manager might decide to spend a whole day with one man working on a portion of his list of ten prime prospects, and then decide to spend just an afternoon with one of the other men. He can do this readily, for the office can quickly check the itinerary of any salesman to determine where he can be located at any particular time.

A double check on the whereabouts of each salesman is obtained by having him call the office each afternoon sometime between 1:00 and 2:00 o'clock.

It is very possible that our sales supervision could be considerably more extensive, but our company feels that confining our men to a small but exclusive territory and holding them solely responsible for that territory is a form of supervision applied in a psychological manner. The company in turn credits each salesman with all business received from his territory, even though it be in the form of a service call or business secured by any other member of our organization.

It is our opinion that a salesman well selected, well trained, and well supervised in our small way, yet treated so that he feels that each bit of honest effort he puts into his exclusive territory is being credited to his earning account, is the most effective implement we have in building a solid sales organization.

SALES INCENTIVES . . .

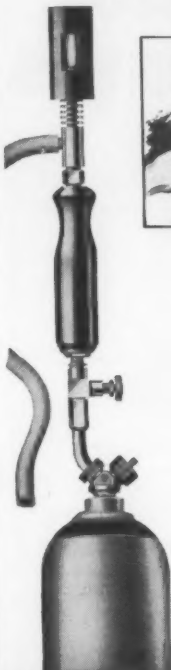
Continued from page 28

to be borne out by experience, any more than having a quota for every month of the year kills off sales incentive.

It is, however, important that there be a variety to the competition, so that new interest will be added every month. It is recommended that the type of contest or drive change every month or not more than every two months, since having the same one would become tiresome and defeat the purpose of the year-in and year-out sales push program.

Circle No. 42 on Reader Service Card for more information

Prest-O-Lite HALIDE Trade-Mark *Leak Detector*



Quick—Always ready for use. Lights instantly. Locates exact source of leak in a few seconds. Avoids waste of refrigerant gas and costly shut-downs of equipment. An indispensable test unit for service and installation kits.

Sure—Reacts instantly to smallest concentrations of any of the non-combustible halide refrigerant gases (F-11, F-12, F-21, F-113, F-114, Carrene) commonly used in domestic or industrial systems.

Simple—Small, light, and handy. Easy to use anywhere. Durably built and dependable. No delicate parts to get out of order.

• For more details, see your jobber or write Linde Air Products Company, a Division of Union Carbide and Carbon Corporation, 30 East 42nd St., New York 17, N. Y.

"Prest-O-Lite" is a trade-mark of Union Carbide and Carbon Corporation.

Order from your local Jobber

As Advertised in **THE SATURDAY EVENING POST!**

Hotels, clubs, restaurants, fountains and institutions are enthusiastic about this new Lipman "Ice Boy"

... it provides a constant supply of crystal clear ice tips ... it's completely automatic ... pays for itself in ice bills saved! Write today for dealer promotional material.

Lipman
"ICE BOY"



YATES-AMERICAN, Beloit, Wisconsin
I am interested in making money selling Lipman Ice Tip Machines. Send details.

Name _____ Title _____
Company _____
Address _____
City _____ State _____

**A PROFIT
ITEM THAT'S
NATIONALLY
ADVERTISED**



Yates-American
BELOIT, WISCONSIN

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COMMERCIAL *Refrigerator* SALES NEWS



OFFICERS AND DIRECTORS of the National Commercial Refrigerator Sales Association shown here were elected at the organization's fifth annual meeting. In the front row, left to right, are: S. G. Taylor, Taylor Refrigerator Co., Des Moines, treasurer; Irving W. Shell, Lee Shell Co., Chicago, first vice president; Frank D. Stella, F. D. Stella Products Co., Detroit, president; Barnett Berch, the Shultz Co., Long Island City, second vice president. Back row: Harry A. Hattenbach, the Hattenbach Co., Cleveland; George F. Wiedemer, Cable-Wiedemer, Inc., Rochester, N. Y.; Ward Soanes, Ward Soanes Co., Inc., Buffalo; and R. J. Wischusen, Engineering & Refrigeration, Inc., Jersey City. The last four named, with Walter Harned, Wichita, Kan., are directors of NCRSA.

...

Stella Heads Commercial Sales Group; 57 New Members Added in Past Year

FRANK D. STELLA, F. D. Stella Products Co., Detroit, Mich., was elected president of National Commercial Refrigerator Sales Association for the coming year at the group's 5th annual meeting held in Chicago at the LaSalle Hotel in conjunction with the 7th All-Industry Exposition.

Commercial refrigeration distributors from coast to coast attended the meeting's educational sessions, which included some unusually frank and fact-filled discussions of some of the basic business problems facing association members.

The panel discussion on sales management—in which leading distributors outlined their policies on sales training, incentives for salesmen, and sales supervision—was particularly pertinent, and is reported in full elsewhere in this issue.

Indicative of the increasing activity

within the association is the fact that 57 new members have been added since the organization's last meeting a year ago, 13 of which were signed up while attending the Chicago sessions.

In addition to President Stella, other newly elected officers of the association are: 1st vice president, I. W. Shell, Lee Shell Co., Chicago; 2nd vice president, Barnett Berch, Shultz Co., Long Island City, N. Y.; and treasurer, S. C. Taylor, Taylor Refrigerator Co., Des Moines, Iowa.

Two new directors were named to fill unexpired terms ending in 1952. These were R. J. Wischusen, Engineering & Refrigeration, Inc., Jersey City, N. J.; and George F. Wiedemer, Cable, Wiedemer, Inc., Rochester, N. Y.

In addition, the following three new directors were elected to full terms expiring in 1954: Harry A.

Hattenbach, Hattenbach Co., Cleveland, Ohio; Ward Soanes, Ward Soanes Co., Inc., Buffalo, N. Y.; and Walter Harned, Walter Harned Co., Wichita, Kansas.

At a meeting of the new board of directors, it was decided to do everything possible to aid in the campaign launched by *Super Market Merchandising* to achieve more liberal depreciation policies on commercial refrigeration fixtures. Aim of this concerted effort is to convince the Bureau of Internal Revenue that such equipment should be allowed to be depreciated in five years, rather than in 10 years as at present.

The directors also decided that NCRSA would this year conduct two new surveys of its membership, one on the methods of handling trade-ins and the other on the training of new salesmen. These will be in addition to the continuing quarterly reports on sales, inventories and accounts receivable.

HAVE you ever stopped to figure out just how much price-cutting actually costs?

Maybe there would be less price-cutting if those who do it would get the mathematics of the situation a little bit clearer.

For instance: on a normal sales volume of \$50,000, a 10% price cut would reduce the volume to \$45,000. This means that you'd have to do 33 1/3% more in volume to offset the price cut, or increase sales by 40% to make the same net profit.

That's with a 10% discount. When you talk about discounts of 15 or 20% from list price, the picture gets completely out of balance, and it's virtually impossible to come out on the profit side of the deal.

Discounts and allowances are easy enough to justify except in terms of profits—and isn't "profits" the main reason why we're in the refrigeration and air conditioning business?

NEWS SHEET BUILDS BUSINESS FOR DEALER

A monthly mimeographed news sheet called "Facts n' Figures" is helping to get more business for Refrigeration Equipment Co. of Madison, Wis., according to Gil Harder of that company.

The sheet contains short bits of copy about new refrigeration equipment, restaurant, store and tavern remodeling jobs, industry facts, and humorous paragraphs.

LEADING THE WAY THE YEAR 'ROUND



BUSH... THE YEAR 'ROUND LINE

Autumn, winter, spring and summer, there's a Bush unit to handle the heating or cooling requirements for product or comfort. Air Handling units and Comfort Conditioners to take the "dog" out of the summer days; Unit Coolers and Product Coolers, Evaporative Condensers and Cooling Towers for year 'round use; water and steam coils, convectors, finned pipe radiation and baseboard convectors offer a fall and winter line for industrial and domestic heating; condensers, special coils and other heat transfer products all combine to offer the smart businessman a year 'round profit line.

Investigate this opportunity now by contacting the nearest Bush Representative or write the factory direct.

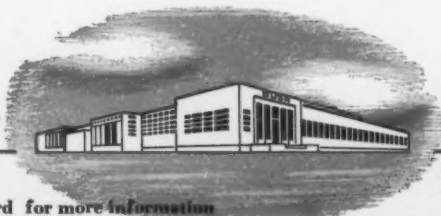
Complete catalogs containing valuable engineering data and specifications available upon request.

Bush Manufacturing Company

WEST HARTFORD 10, CONNECTICUT

Circle No. 44 on Reader Service Card for more information

and AIR CONDITIONING • DECEMBER, 1951



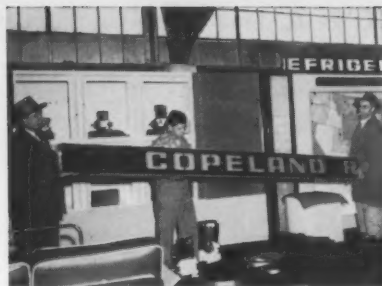
Since
1907

People at the Show

The 7th All-Industry Show in Chicago last month, like all its predecessors, was primarily designed to display the industry's products. But, as always, *people* were second only to products in importance and interest—the people who showed the products, and the people who looked at them.

Look at the pictures on these pages—pictures taken at random throughout the Show. We're sure you'll see many familiar faces. Maybe even your own!

(All photos on these pages by Irving Alter, Harry Alter Co.)



ABOVE: The job of putting up displays, always a tough one, was tougher than usual this year because the heat in the pier hadn't been turned on, and overcoats and hats had to be worn. Shown here in the process of erecting part of their booth's backdrop are W. G. Von Meyer, advertising manager of Copeland Refrigeration Corp., and Ernest Guillot and Carl Dreese, also of Copeland.



ABOVE: Don Warren of Jas. P. Marsh Corp. has apparently got himself in real bad with three of his companions for some mistake he made in the booth-building process. At least, he is being threatened here by F. L. Zicarelli (with the hammer), Charles Kelly, and Robert Barnett, all of Marsh.



LEFT: W. F. Davidson, of Hinshaw Electric Supply, San Francisco, accepts a gift from Miss Fascetta, attendant in Wabash Mfg. Co.'s booth, while Robert Caplan, Wabash



sales manager, looks on. CENTER: Product features are explained by Ed Turner, of Linde Air Products Co.'s Chicago office, to W. T. Pickavance, of Albert Lea, Minn.



RIGHT: Good-natured banter features this scene involving Ed Groff and Martin Vidis, of Ranco; M. J. Meiklejohn, of McIntire Connector Co.; and Robert Roney, of Ranco.



LEFT: Four men from White-Rodgers Electric Co.'s Chicago office look over one of the company's new devices. Here are John Bye, William Bowen, John Jung, and Paul Williams.



CENTER: Some of the Ansul Chemical Co. sales staff took time off from Show activities to pose for this group photo. RIGHT: Discussing mutual problems here are A. B. New-



ton, of Acme Industries; John Fleming, Pittsburgh; Carl W. Millsom, of Acme Industries; and W. A. Allen of Penn Industrial Supply Co., Pittsburgh.



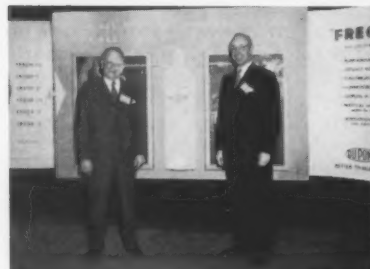
LEFT: L. C. McKesson, of Ansul Chemical Co., chairman of the REMA All-Industry Show Committee, had to be in so many places at approximately the same time that he borrowed the Navy Pier's motor-scooter to help



him get around. **CENTER:** Myles Jarrow, of Jarow Products, answers a question for H. S. Baker of Savannah Refrigeration, Savannah, Ga. **RIGHT:** Here are the "messengers" who operated the Message Center maintained by



COMMERCIAL REFRIGERATION Magazine at the All-Industry Show to relay personal and phone messages to Show exhibitors and visitors. Hundreds of messages were delivered through this unusual service.



LEFT: R. J. Thompson, director of sales for Kinetic Chemicals, and Charles Worth, of Kinetic's Chicago sales office. **CENTER:** Malcolm Henning, Paul Penn, and Ralph Penn,



of Penn Electric Switch Co. **RIGHT:** Enjoying a cool drink of water are J. B. Baughman, of Westinghouse Electric Corp.'s Springfield,



Mass., plant; Gordon Thompson, of the Westinghouse Chicago office, and Sid Culver, of the S. K. Culver Co., Chicago.



LEFT: Deep in a discussion of current supply and delivery problems are H. Peterson, of Heat-X-Changer Co., Inc.; A. H. Holcombe, of Victor Sales & Supply Co., Philadelphia refrigeration wholesaler; and Cecil Boling, of Bush Mfg. Co. **CENTER:** Words of welcome



are exchanged here by Larry Larson, of Tecumseh Products Co. and J. S. Kimmel, of Republic Electric, refrigeration parts wholesaler of Davenport, Iowa, as Marc Shantz, Tecumseh's midwestern representative, looks on. The man at far right is not identified.



RIGHT: Members of the Harry Alter Co. organization greet a couple of friends from North Town Refrigeration, Joseph Lenarts and Ralph Hansen. Alter men in the photo are Leonard Sostrin, Ed Wodniakowski, Joe Novotny, and Murray Adinoff.



LEFT: Checking over a point of valve construction here are G. Hersey, Jr., and Stan Willis, of Kerotest Mfg. Co. **CENTER:** Grouped in a discussion here are Henry Boxell, American Brass Co.; Austin Balton, New York City;



Sam Graziano, Advance Refrigeration, Tampa, Fla.; M. T. Lango, American Brass Co.; Ernest Haupt, W. Englewood, N. J.; and Frank Bolantyne and W. H. Dowd, of American Brass Co. **RIGHT:** This wholesaler-manufacturer



get-together includes Thomas Abdouch, Klick Refrigeration Supply, Omaha; Charles Benson, of Imperial Brass Mfg. Co.; John Klick, of Klick Refrigeration Supply, and E. F. Todd, of Imperial Brass.

In this case use Formula (3):

$$U = \frac{1}{\frac{1}{6.00} + \frac{4''}{9.2} + \frac{4''}{6.00} + \frac{1.312''}{.80} + \frac{1}{1.10} + \frac{1}{2.50} + \frac{1}{1.65}} = \frac{1}{4.487}$$

$$U = .22$$

Example No. 6: Determine the coefficient of transmission U of an outside wall as in Fig. 6, consisting of $5/8$ inch clapboard, $1\frac{1}{2}$ inch wood sheathing (actual thickness $1\frac{5}{16}$ inch), a 1 inch air space or more between studs and $3/4$ inch metal lath and plaster. The conductivity k of clapboard and wood sheathing is .80, conductance C of air space is 1.10 and conductance of metal lath and plaster is 4.40. The inside surface is for still air and the outside surface for 15 miles per hour wind velocity.

$$U = \frac{1}{\frac{1}{6.00} + \frac{.625''}{.80} + \frac{1.312''}{.80} + \frac{1}{1.10} + \frac{1}{4.40} + \frac{1}{1.65}} = \frac{1}{4.321}$$

$$U = .23$$

Example No. 7: Determine the coefficient of transmission U of an outside wall as in Fig. 7, consisting of 2 inch of stucco, $1\frac{1}{2}$ inch wood sheathing, an air space between studs of 1 inch or more, and $3/4$ inch of metal lath and plaster. The conductivity k of stucco is 12.0, of wood sheathing .80, the conductance C of air space is 1.10 and conductance of metal lath and plaster is 4.40. The inside surface coefficient for still air is 1.65 and the outside surface coefficient for stucco for 15 miles per hour wind velocity is in this case 9.0.

$$U = \frac{1}{\frac{1}{9.0} + \frac{2''}{12.0} + \frac{1.312''}{.80} + \frac{1}{1.10} + \frac{1}{4.40} + \frac{1}{1.65}} = \frac{1}{3.651}$$

$$U = .27$$

TABLE 1—CONDUCTANCE VALUE FOR VARIOUS MATERIALS

Thermal Conductance in Btu. per hour per square foot per degree F for thickness of material given or as used on standard construction.

Material	Conductance "C"	Thickness
Bright aluminum foil		
$3/4$ " air space faced one side	.46	
$3/4$ " air space faced two sides	.41	
Single foil with 2 $3/4$ " spaces	.23	
Double foil with 3 $3/4$ " spaces	.15	
Asbestos shingles	.60	
Asphalt roofing	.65	
Clay tile	.64	6"
Clay tile	.60	8"
Clay tile	.58	10"
Clay tile	.40	12"
Concrete blocks	.90	8"
Concrete blocks	.78	12"
Cinder concrete blocks	.58	8"
Cinder concrete blocks	.53	12"
Glass blocks	.46	

Haydite blocks	.50	8"
Haydite blocks	.47	12"
Linoleum	1.36	$1/4$ "
Metal lath and plaster	4.40	$3/4$ "
Partition clay tile	1.0	4"
Partition gypsum tile	.46	4"
Plaster ($1/2$ " on $3/8$ " plasterboard	2.40	$7/8$ "
Wood lath and plaster	2.50	$3/4$ "
Gypsum board	3.73	$3/4$ "
Gypsum board	2.82	$1/2$ "
Asphalt shingles	.65	

TABLE 2—CONDUCTIVITY VALUES FOR VARIOUS MATERIALS

Thermal Conductivity (Conduction only) in Btu per hour per square foot per degree F per inch of thickness.

Material	Thermal Conductivity (k)
Rigid	
Asbestos Sheet	.29
Balsa Wood	.31
Celotex	.34
Corkboard	.27
Insulite	.34

Example No. 8: Determine the coefficient of transmission U of a roof as in Fig. 8, consisting of a built up roof of $3/8$ inch tar, felt and gravel, 2 inch rigid corkboard insulation and 1 inch wood deck (actual thickness $25/32$ inch). The conductivity k of tar, felt and gravel is 1.33, of corkboard .27 and of wood deck is .80. The inside surface is for still air and the outside surface for 15 miles per hour wind velocity.

$$U = \frac{1}{\frac{1}{6.00} + \frac{.375''}{1.33} + \frac{2''}{.27} + \frac{.781''}{.80} + \frac{1}{1.65}} = \frac{1}{9.441}$$

$$U = .11$$

The above examples show how the overall coefficient of heat transmission is determined for any type of construction. This coefficient of transmission U may be taken for many common constructions directly from various heating textbooks without any calculations, but if the type of construction at hand is not directly given in any authoritative book or paper, the heating engineer should calculate the U .

All heating and air conditioning engineers should know how to calculate the coefficient of transmission. It is good business to be correct, as this is one of the main points which will determine the first cost of the job. A proper calculation of the heating or cooling load means proper size of equipment, proper first cost and eventually complete satisfaction of the functioning of a job. That is good business.

TABLE 3—CONDUCTANCE OF AIR SPACES AT DIFFERENT MEAN TEMPERATURES

Mean Temperature Difference (F)	Conductance of Air Spaces for various widths in inches					
	$1/8$	$1/4$	$3/8$	$1/2$	$3/4$	1"
20	2.3	1.4	1.2	1.1	1.04	1.03
30	2.4	1.4	1.2	1.15	1.05	1.07
40	2.5	1.5	1.3	1.2	1.13	1.10
50	2.6	1.5	1.35	1.25	1.17	1.16
60	2.7	1.6	1.4	1.3	1.2	1.20
70	2.8	1.7	1.5	1.4	1.3	1.24
80	2.8	1.7	1.5	1.4	1.3	1.28

For normal heating loads 40 degrees is taken as the mean temperature.

Masonite	.33
Wallboard	.50
Semi-Rigid	
Fibrofelt	.32
Hairfelt	.31
Rockcork	.37
Flexible	
Balsam Wool	.27
Dry Zero	.24
Kapok	.24
Palco Wool	.26

Loose Fill or Bat

Asbestos Wool	.32
Glass Wool	.27
Gypsum	.48
Mineral Wool	.27
Wool—Pure	.26
Rock Wool	.28
Sawdust or Shavings	.41

Masonry

Asbestos Millboard	.84
Brick—common	6.00
Brick—face	9.2
Assume Veneer = 4"	
Brick—fire	4.1

Material	Thermal Conductivity (k)
Cement & Asbestos	2.7
Use $\frac{3}{8}$ " thickness sheet	
Cement Mortar	12.0
Cement Plaster	8.0
Cinder Concrete	4.86
Concrete	12.6
Concrete Roof Slab	3.98
Fiber	2.0
Glass, window	5.5
Gypsum Plaster	3.3
Haydite	3.96
Limestone	14.0
Marble	14.0
Slate	10.37
For roofing use $\frac{1}{2}$ " thick	
Stone	12.5
Tar, Felt & Gravel	1.33
Use $\frac{3}{8}$ " thick	
Stucco	12.0
Tile or Terrazzo Flooring	12.0
*Wood	.8
Yellow Pine or Fir	
Wood (across grain)	.97
Fir	
Wood (parallel to grain)	2.42
Fir	
Wood	1.15
Maple or Oak	
* For shingles, clapboards and siding use $\frac{5}{8}$ "	
For all other wood use as follows:	
1" lumber use 25/32"	
1½" lumber use 1-5/16"	
2" lumber use 1½"	
2½" lumber use 2½"	
3" lumber use 2¾"	
4" lumber use 3¾"	
For finish flooring use 13/16"	

TABLE 4—SURFACE COEFFICIENTS FOR STILL & MOVING AIR

Surface	Still Air (f.)	Moving Air (15 mph) (f.)
Average	1.65	6.0
Glass	1.50	4.50
Stucco		9.0
Bright aluminum	.80	

CARRIER TO PRODUCE HULLS FOR M-47 TANK

A contract for quantity production of 15-ton armored steel hulls for the Army's new M-47 medium tank at Carrier's heavy machinery plant on Thompson Road in Syracuse was announced recently by Cloud Wampler, president of Carrier Corp.

The tank order is one of several major defense contracts undertaken by Carrier, totalling in aggregate more than \$50,000,000, which includes its recently announced contract for production of essential parts for General Electric's big J-47 turbo-jet engine.

The tank hulls will be produced under sub-contract to the American Locomotive Co. of Schenectady.

BUY FROM YOUR REFRIGERATION WHOLESALER

SHAKING FOR A LOSS? . . .

Continued from page 37

Problems of resiliency supporting small loads ranging from a few ounces to several pounds present difficulties not found in handling heavier loads. In overcoming these difficulties, no isolation material has proven more effective than rubber.

Because of this effectiveness, isolation engineers have developed a wide variety of designs using rubber-in-shear for resiliency and rubber-in-compression for stability, thus enabling the application design engineer to consider the particular problems of installation when selecting the units for the job.

The application or adaptation of these standard units and the conception of new designs for special installations is a large part of vibration isolation engineering today, and eliminates the possibility of overlooking local conditions peculiar to a specific job, which exist when an attempt is made to select mountings from a catalog.

Cork, too, has its place in modern vibration elimination. Natural cork plates call for the same accurate loading for maximum efficiency as do other systems of isolation. The table of loadings that has been calculated for these other systems may be used just as successfully for natural cork plates. Results are greater efficiency and lower cost.

Cork plates are made from a pattern of strips of pure natural cork with a steel confining frame. Natural cork plates may be installed under conditions where they are in continuous contact with oil without losing their efficiency.

The use of vibration eliminator rails for certain types of machinery has greatly increased. These rails are supplied both in rubber-in-shear and in cork.

Both designs are convenient and effective, since they are supplied in lengths to meet conditions, and the built-in isolation units are located according to the distribution of the weight of the machine. These isolation units are metal housed and locked in place. The housing provides a level bearing surface on the cork or rubber.

Rails are drilled and tapped for machine foundation bolts with ample threading surface. Where driver and

driven are not on a common base, or where the machine base itself needs continuous support, the rails provide this necessary base and support. These rails also help to distribute the weight over the floor area since the bottom member extends the entire length of the rail.

Installation is relatively simple, as extending lugs at the ends of the rails are drilled for lagging to the floor. The cork rails are used where contact with oil is possible. The rubber rails are recommended where the supporting structure is not rigid.

G-E APPLIANCE OFFICES MOVED TO LOUISVILLE

The General Electric Co.'s major appliance division has officially established headquarters in Louisville, Ky., Clarence H. Linder, general manager of the division, has announced.

OPENS HAMMOND BRANCH

Automatic Heating & Cooling Supply Co., refrigeration supplies wholesaler with headquarters in Chicago, Ill., has opened a branch at 850 165th St., Hammond, Ind.

Ample parking space facilitates pick-up sales, and truck deliveries will be made to outlying areas.

NAMES NEW COIL



He came a long way to tack a trade name on one of the products he handles, did A. R. Fallick (right) of Johannesburg, South Africa, but the name he picked was a "natural". While visiting the Larkin Coils factory just prior to the All-Industry Show, Mr. Fallick, who is managing director of Refrigeration Equipment Co. (Pty.) Ltd., was told by Larkin president O. M. Sims (left) that the company still didn't have a name for the newest and smallest member of its coil family, the Model BT-9 Humi-Temp shown here. Noting its small size and compact design, Mr. Fallick promptly suggested, "Why not call it the 'Bontam'?" The name rang the bell with both Mr. Sims and the company's advertising agency, and so "Bontam" it is.

NOW

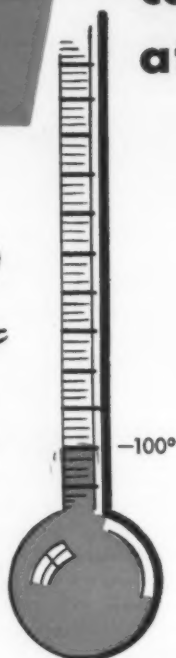
you can assure clean
compressor operation
at all temperatures



...even down to **-100° F.**

The new and improved *Texaco Capella Oil (Waxfree)* is a better-than-ever business builder for Distributors, Dealers and Service Men because it assures better-than-ever compressor performance—not only at normal refrigerating temperatures but even down to 100° F. below zero.

By actual test, *no other compressor oil equals Texaco Capella Oil (Waxfree)* in low haze and floc temperatures. This remarkable oil has a very low pour test, very high resistance to oxidation, and assures complete freedom from wax precipitation. It won't foam, won't react with refrigerants. It's moisture-free.



There is a complete line of *Texaco Capella Oils (Waxfree)* to assure more efficient operation from every refrigerating compressor—regardless of age, size, or type. Available in refinery-sealed 55-gallon drums, and 5-gallon, 1-gallon and 1-quart containers for make-up.

Let *Texaco Capella Oils (Waxfree)* help you expand your compressor oil business. The Texas Company, 135 East 42nd Street, New York 17, N. Y.



TEXACO Capella Oils (Waxfree)
FOR ALL REFRIGERATING AND AIR CONDITIONING EQUIPMENT

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA broadcasts every Saturday afternoon.

THE PRACTICAL REFRIGERATION APPLICATIONS MANUAL

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. The most interesting ones will be published in these columns. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

PROBLEM

WE HAVE some standard $\frac{3}{4}$ -ton air-cooled console-type air conditioners which we would like to convert to dehumidifiers. What necessary changes must be made?

"These machines use a highside float to control the suction back pressure. It is a simple change-over to control the hot air from the condenser to be forced into the intake of the cooling coil.

"What changes would you advise to make these units into efficient dehumidifiers? We are not concerned with temperature changes between intake and exhaust air; our primary interest is dehumidification."

SOLUTION

TO CONVERT a console-type air conditioner to a dehumidifier, the air from the cooling coil must be guided by means of a duct through the condenser. The condenser fan and motor should be removed.

With this arrangement, the air is first cooled down below its dew point, thus removing moisture. It is then reheated by the condenser heat to approximately the entering temperature of the air.

Actually, the air conditioner in its present form will dehumidify the same amount as it will after the above conversion. This conversion will merely eliminate the cooling feature.

The addition of the duct from the cooling coil to the condenser will increase the resistance on the supply fan which will in turn reduce the air volume a certain amount. If this reduction is too great, frosting of the

coil may be a problem. However, lowering the air temperature off the coil will help the dehumidifying capacity.

VERNON TUPPER WINS VIKING TUBE CONTEST

Vernon Tupper, Jr., of Nashville, Tenn., was awarded an outboard motor for estimating most accurately the number of feet of copper refrigeration tubing contained in a coil displayed in the Viking Copper Tube Co. booth at the 7th All-Industry Show.

Tupper is regional sales manager for Acme Industries, Inc., in the Nashville territory. His estimate of the amount of tubing in the coil was 1110 feet, 11 inches; the actual amount was 1110 feet, 10 $\frac{1}{2}$ inches.

HARRISON JOINS YORK IN SOUTHWEST

John H. Harrison, a native of Waco, Tex., has been appointed a sales supervisor in the southwest district of York Corp.

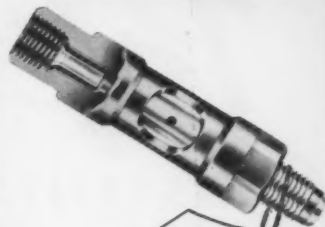
Harrison, who succeeds L. B. White, had been associated with the Wells Mfg. Corp. in a similar capacity. The York southwest district, with headquarters in Houston, includes the states of Texas, Alabama, Mississippi and Louisiana.

RSD OPENS BRANCH IN BAKERSFIELD, CALIF.

Refrigeration Supplies Distributor, Los Angeles parts wholesaler, has announced the opening of a new branch store in Bakersfield, Calif. Manager of the new branch will be Jack Bowen.

Circle No. 46 on Reader Service Card

To our many friends
and customers



Merry Christmas
and a
Happy New Year

Sincerely

Ed Wittman

Dick Hendrickson

ALLIN MANUFACTURING COMPANY

1153 West Grand Ave., Chicago 22, Ill.

PARAGON

DEFROSTING
TIME SWITCHES

300 M
SERIES



From
\$19.50 List

For Commercial Defrosting

• Electric Heat • Hot Gas
or Compressor Shut-Down

For

UNIT COOLERS • WALK-IN BOXES
FROZEN-FOOD DISPLAY CABINETS
LOCKER PLANTS • REACH-IN CABINETS
• FUR STORAGE VAULTS •

Paragon 300M series offers accurate, easy-to-set synchronous-motored time switches for up to 8 defrost periods per day, of two hours or less . . . one of a wide range of dependable Paragon Time Controls.

AMERICA'S LARGEST EXCLUSIVE
MANUFACTURER OF TIME CONTROLS
FOR ALL USES

MAKERS OF THE FAMOUS

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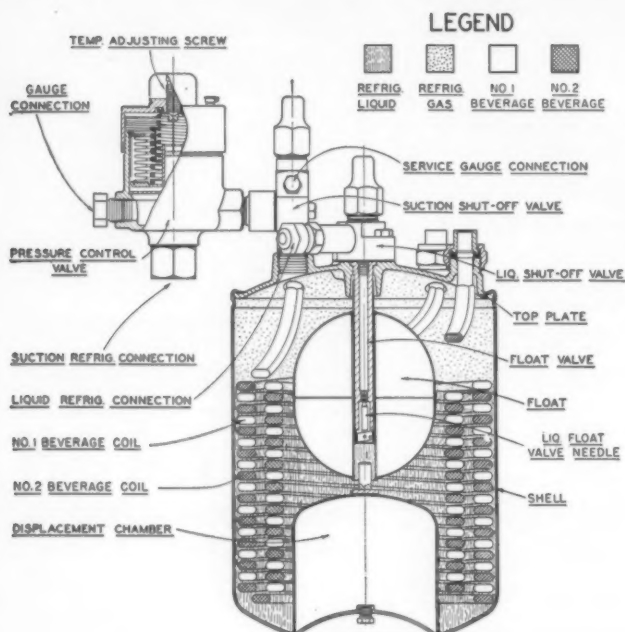
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*40-degree exit temperature is our standard factory setting. Settings from 5 degrees to 68 degrees above zero can be provided on request, depending upon individual liquid cooling requirements.



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DECEMBER, 1951 • COMMERCIAL REFRIGERATION

CONTRACTORS

NEWS • ACTIVITIES • PLANS

RACCA Program Calls for Closer Cooperation Among Industry Groups

THEODORE A. REINA, of M & R Engineering Co., Brooklyn, N. Y., was re-elected president of Refrigeration and Air Conditioning Contractors Association at the 6th annual convention of RACCA Nov. 3 and 4 in the Hotel Knickerbocker, Chicago.

A. M. Palen, of Palen Refrigeration Co., St. Paul, was elected first vice president; Ralph W. Lampie, of Lampie Refrigeration Service, Richmond, Va., second vice president; Cecil E. Kirby, of Miami Super-Cold, Inc., Miami, Fla., recording secretary; George T. Howe, of Accurate Electric Refrigeration Service, Inc., Chicago, treasurer; and B. C. McCall, of Lilie & McCall, Inc., Chattanooga, Tenn., sergeant-at-arms.

Directors, who with the officers will guide RACCA's activities during the coming year, are:

R. W. Noll, Commercial Refrigeration

Co., Los Angeles, immediate past president; Harvey O. Miller, Murphy & Miller, Inc., Chicago; Warren W. Farr, Refrigeration Sales Corp., Cleveland; G. T. Rostock, Articaire Refrigeration Co., Kansas City, Mo.; Ralph E. Manns, of Ralph E. Manns Refrigeration, Wilmington, Calif.; William J. Schemers, Schemers Refrigeration, Detroit; and A. G. Dienstel, A. G. Dienstel Co., Bridgeport, Ohio.

Nathan Edelstein continues as RACCA's executive vice president.

Spearheading the organization's program for the next year will be an increased emphasis on membership, both in the national organization and in strong local groups throughout the country.

"We will increase our efforts to encourage the formation of more local groups and to assist such groups in

developing aggressive local programs, and to coordinate those programs with the national efforts," president Reina said, in discussing plans for RACCA'S continued growth.

"The local groups not only benefit from the national organizations' accomplishments, but the national organization helps them achieve their local objectives.

"We know that the coming months will bring increased problems of many kinds. Material shortages are to be expected. Merchandise will probably become more and more difficult to secure as the country gets into full swing in its defense program. There'll be more and more forms to be filled out—more and more regulations that will be hard to understand—and often harder to follow. There'll be labor problems—labor shortages.

"RACCA will continue to keep you informed of all developments concerning our industry. RACCA will analyze the various regulations for you. RACCA will give you a continuous stream of information—facts, ideas, methods—to help you conduct your business more profitably. RACCA's program of standardization of forms, terminology and practices will be stepped up in keeping with the needs of the times. RACCA is prepared to meet all of the coming problems as they arise."

Calling for "coordinated, cooperative, harmonious" efforts by the industry's principal trade associations to better advance the mutual interests

THESE MEN WILL GUIDE RACCA ACTIVITIES DURING THE YEAR AHEAD



AS OFFICERS AND DIRECTORS of Refrigeration and Air Conditioning Contractors Association, these men will direct RACCA'S activities during the ensuing year. In the front row, left to right, are: R. W. Noll, Los Angeles, immediate past president; George T. Howe, Chicago, treasurer; Ralph W. Lampie, Richmond, Va., second vice president; Theodore A. Reina, Brooklyn, president; A. M. Palen, St. Paul, first vice president;

and Cecil Kirby, Miami, Fla., recording secretary. In the back row, left to right, are: Nathan Edelstein, executive vice president; Directors Harvey O. Miller, Chicago; G. T. Rostock, Kansas City; Warren W. Farr, Cleveland; Ralph E. Manns, Wilmington, Calif.; A. G. Dienstel, Bridgeport, Ohio; and W. J. Schemers, Detroit; and Morris Schneider, of Schneider & Edelstein, RACCA counsel.

Presenting THE NEW P. H. "SHOWMAN" LINE

DOUBLE DUTY "GRAD-U-MATIC" DISPLAY CASES



10 FT. MODEL — REMOTE

Designed to INCREASE SALES THRU BETTER VISION — DISPLAY AND REFRIGERATION

Before you buy any display case see the new Puffer-Hubbard "Showman" Case . . . finished in lifetime porcelain and stainless steel . . . streamlined to the nth degree to focus your customers' attention on the products you have to sell. It's the new case with maximum interior display areas! With full vision, Triple Thermopane (non-fog) front glass! With dual fluorescent (no-shadow) lighting! And the "Showman" Case will keep your meats and dairy products in the most appealing saleable condition. It's equipped with "Grad-U-Matic" Air Conditioning! The exclusive Puffer-Hubbard feature which practically eliminates shrinkage, spoilage and discoloration . . . through effective control of Temperature, Humidity and Air Flow! Available in 6', 8' and 10' models.

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CABINETS CABINETS TESSEN CASES RETARDERS CABINETS COOLERS



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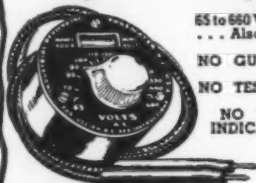
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INDICATIONS"



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DECEMBER, 1951 • COMMERCIAL REFRIGERATION

of them all, Reina said:

"Our industry must have an exchange of ideas and a closer understanding of mutual problems within itself. How can we achieve that? I say that a permanent Industry-wide Council can do it.

"If we were to set up such a Council, consisting of two or three members from each group, that Council could take up any program presented by one group and properly analyze that program as it affects all groups.

"The Council members could bring back to their respective groups the story of the other groups' problems, etc., with the result that we would all have a fuller understanding of what each group could, should and would do.

"With industry-wide support behind every effort, whether it be na-



"That ice cube maker certainly
straightened out our Monday
morning production problem."

tional or local, we must succeed.

"Ours is a major industry—one of the biggest in the country. Yet, because lack of unity splits our efforts, we are still considered a part of the other industries.

"An Industry-wide Council would not only coordinate the various group activities, it could develop a public relations program that would gain for us recognition as the major, vitally important industry that we are.

"It is my feeling that this is one of the most important steps in our industry's progress and that such a Council will play an important part in the further growth and effectiveness of RACCA and all of the other groups in our industry."

Tracing the progress that RACCA has made over the past years, Warren W. Farr, one of the association's early

COOLED POTATOES BRING PREMIUM PRICES



Bumper crops of Red McClure potatoes, grown in the fertile San Luis valley in Colorado, are kept at premium quality by proper conditions of temperature and humidity. Shown here is the warehouse operated by Ray Metz, one of the big-scale potato growers of the region, which utilizes air conditioned storage. The Metz warehouse, a 170 x 50 foot building of lightweight pumice concrete blocks insulated with glass wool, uses a Mario Industrial type unit cooler to provide moist storage which reduces spoilage and keeps the product at superior condition for peak demand. During the first season, Metz stored 22,000 sacks (100 lbs. each) and received \$1 a sack higher than market price, between October and May.

presidents and at present a RACCA director, commented:

"For a good many years the contractor has been burdened with individual problems to the point that he has been unable to participate in solving major problems in his industry.

"The national and local organizations of refrigeration contractors now provide a medium so that some of these problems can be discussed and solved. Things have been going on all around us that we haven't liked—and we haven't done very much about them. We are now organized to profit by our experiences."

Reviewing activities of the national office, executive vice president Nathan Edelstein noted that advances were being made in trade relations with manufacturers, that action had been instituted to clean up unfair competitive practices, and that a broad variety of special services were now being made available to member-contractors.

He reported that two new local associations, one from the state of Washington and one from Detroit, had joined RACCA; and that individual members had come into the association from Detroit, Schenectady, N. Y.; Youngstown, Ohio; Yakima, Wash.; Buffalo, N. Y.; Cambridge, Mass., and Seattle, Wash.

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

RACCA CONDUCTING WARRANTY SURVEY

Refrigeration and Air Conditioning Contractors Association is conducting a questionnaire survey of its membership to determine average expenditures and additional expenses incurred by contractors on the replacement of air conditioning parts or complete units required to carry out the manufacturer's warranty.

The survey is designed to determine what expenses contractors have assumed for such things as refrigerant gas, shipping charges, labor, and other items that the contractor may have assumed the costs of in carrying out the warranty.

After results of the survey are tabulated, RACCA plans to present the information to manufacturers with a view to re-apportioning of expenses involved in in-warranty maintenance work.

PHOENIX STUDIES NEED TO CONSERVE WATER

Phoenix, Ariz., water department officials are studying the need for a city ordinance requiring recirculating pumps and cooling towers for all evaporative coolers and refrigerated air conditioning equipment.

Only the fact that the city was able to skin through last summer's water shortage kept such a law from being put into effect then.

A study made by D. M. Browning,

a water inspector, indicates that these two types of cooling used 14 million gallons of water per day, of which 6½ million gallons were wasted. The other 7½ million gallons were used for irrigation purposes.

Browning's study revealed that mechanical refrigeration wasted 75% of the water it used, turning only 25% to irrigation, while evaporative coolers wasted 25% and turned 75% to irrigation.

Of the 14 million gallons used daily, 6 million gallons passed through mechanical refrigeration equipment and 8 million gallons through some 40,000 home evaporative coolers.

L.A. CONTRACTORS CAN RUN DRAIN LINES

The Los Angeles Board of Building and Safety Commissioners recently approved a petition by the Refrigeration and Air Conditioning Contractors Association of Southern California, Inc., that holders of a state refrigeration license may run condensate drain lines within the cooling compartment and 2 feet outside to an interception fixture, providing a plumbing permit is obtained. This permit will be issued to holders of state refrigeration licenses.

Petition FTC to Set Trade Practice Rules

A petition to the Federal Trade Commission asking for the establishment of trade practice rules in the refrigeration and air conditioning industry, has been filed by the Refrigeration & Air Conditioning Contractors Association.

The petition was filed by RACCA through George T. Howe, Chicago contractor and chairman of RACCA's Unfair Trade Practice Commission, and was prepared by the general counsel of RACCA, Schneider & Edelstein, of New York City.

As drawn up by RACCA, the petition for trade practice rules is aimed primarily at ice cream, beverage, and frozen food producers. It states that "ice cream manufacturers will buy refrigeration equipment, will service and install such equipment below cost or for no cost, merely to sell their ice cream and dairy products."

Text of the petition will be published in next month's issue.



There's always one that's better...
and in controls it's RANCO!

Refrigeration men have made Ranco the world's leading refrigeration control. For every one of the millions of Ranco controls now in use was specified and ordered by refrigeration experts—designers and

servicemen. What better proof could there be that Ranco is your best bet for replacement controls? Genuine Ranco controls are available for more than 4,000 replacement installations.

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THE SERVICE MAN'S DEPARTMENT

HERE'S HOW!

Edited by
Warren W. Farr

A Few Check-Points On Cold Storage Doors

We know that in the course of your installation work you are sometimes called upon to handle the selection, specifying and erection of cold storage doors. A booklet issued recently by Jamison Cold Storage Door Co. lists some things to remember when selecting and specifying a cold storage door, and because we think you'll find them worthwhile we're passing them on to you:

1. What is the temperature maintained in the refrigerated space?
2. What is the temperature and

*I do it
this way...*

MOST any service cylinder unfit for refrigerant due to moisture or rust makes a very handy container in which to carry compressed air for use in cleaning out condensers. An adaptor making it possible to fill this cylinder from the air pump at any gas station is easily made.

Donald C. Condee,
Mt. Sterling, Ill.

humidity to which the warm side of the door will be exposed?

3. With what insulating material is the door to be furnished? What thickness?

4. Have you selected the correct type and style of door? Several types and styles of doors are available. For zero and sub-zero use, for example, a different type door would be required than for moderately low temperatures.

5. Have you determined swing? (Right-hand or left-hand).

6. Are door and frame to be metal clad for fire retarding purposes? As

protection against hard usage? In this case you would want to keep in mind the gauge and character of metal, height to which it is to be applied, and whether it is on door only, frame only, or on both—as well as whether it is to go on front or back of door or frame or both.

7. What hardware finish is to be used? This would take care of any special finish (like chromium, for instance) that might be called for.

8. Have you selected type or sill? Some jobs may call for a concrete sill, others for a beveled wood sill, and still others might require a sill higher than floor level.

Question Corner

Question: What is the correct tension for V-belt drives?

Answer: There is no set value for belt tension. The drive is operating correctly when there is no slippage under the starting load and no "whip" under running conditions. The cardinal rule with V-belt drives is to remember that belts must not be operated under too great tension. If the belt slips unless tightened to the extreme it is a sign that the compressor may be overloaded or leaking back.

Reuniting Liquid In Thermostat Thermometer

Sometimes in shipment of thermostats the liquid in the thermometer becomes separated. Always look for this, otherwise the thermostat setting and the thermometer reading will not agree.

From White-Rodgers electric service information come the following helpful hints as to methods which can be used to correct this condition:

The surest and safest way is to apply heat. This must be done with

caution to prevent the liquid from expanding too much and breaking the thermometer.

Two ways to apply this heat are to use:

1. A dry rag heated by holding against a steam pipe, over a gas flame, etc.
2. A cigarette or match—these work very quickly.

In all cases take the heat away just as the liquid begins to unite and *quickly blow on the thermometer,*

*I do it
this way...*

THE other day I found myself in the position of having no flaring tool because the one I had was worn out at the threads in the yoke, and when tightened up it would slip back a thread or two.

Upon examination I found that the threads still showed on both parts but the slipping was caused by the fact that these threads were so fine and the center part was loose in the yoke body.

Placing the side of the yoke on a vice, I hammered the side carefully until the yoke was tight enough to hold but not tight enough to bind. I intended this simply as a temporary emergency repair, but three months now have gone by and I am still using the same flaring tool.

E. P. Gravelle,
Vancouver, B.C.

thus preventing additional expansion and possible breakage.

Never jar the entire thermostat. Jarring it can knock the control out of accurate calibration and do more harm than good.

Also remember it is always a good idea to be certain the scratch-mark (-) on the face of the thermometer lines up with 70° on the scale. Doing



TO REPLACE CARBON TET

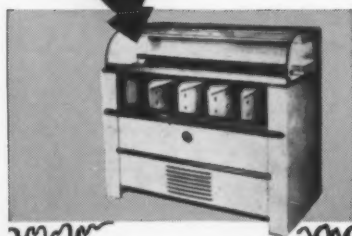
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Night covering is quick easy with the NEW Slide-A-Way Night lid. Outstanding also are the Snap-On Defrosters, Eye-Level Price Panel, Thermopane Glass Front, Tecumseh Slide-Out unit. Write for literature for full details.

BAILEY & PERKINS CO.
UTICA, MICHIGAN

this may eliminate a service call.

If there is more red liquid in the stem of the thermometer *above* the lowest separation than there is *below* it, it is usually best to replace the thermometer.

WHY COMPRESSOR OIL LEVEL MAY VARY

Question: Why does the oil level drop in a compressor on a new installation when there is no apparent loss of oil at the seal, or other points in the system?

Answer: Practically all refrigerants have an affinity for oil, and are inter-soluble to varying degrees. This means that the refrigerant will "carry over" oil from the compressor to all parts of the system.

If the refrigerant velocity within the system as a whole is normal, practically no oil will be entrained in evaporators, suction line pockets etc. if the temperature of the evaporator is not below the free pour point of the oil.

Where flooded, or semi-flooded evaporators are used, however, or when velocity of the refrigerant drops off at any point, there is a tendency for the oil to "drop out," be trapped, and not return to the compressor.

Good practice is to check compressor oil level carefully several times in the first few days of operation, and to add oil as may be necessary to give a reasonably constant oil level.

WANT TO EARN \$5?



You don't have to be a writer or a literary genius! Just jot down some of the shortcuts you've developed in your maintenance or installation work and send them to **HERE'S HOW EDITOR, COMMERCIAL REFRIGERATION AND AIR CONDITIONING**. Your \$5 will be paid promptly when your maintenance tip is published in the magazine. Let's hear from you!



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MAKING CHORE
TO CHECK
THE GASKET
ON THE DOOR

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**Semi-Steel
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Highest grade non-porous metal—full size parts—clean cut threads. Back seated stem—Shank design base—perfect alignment. Long life packing ring.

ALL-STEEL GAUGE SETS

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Rates for "Positions Wanted." \$4.00 minimum, limit 25 words. For all other classifications, \$4.50 minimum for 25 words or under, each additional word 15c; boldface type or all capitals, \$7.50 minimum for 25 words or under, each additional word 20c. Box addresses count as five words, other addresses by actual word count. All advertisements in this section are payable in advance.

TRAINING AVAILABLE

Course on sealed unit rebuilding trade secrets disclosing exclusive methods for all operations. \$12.50 or write for details. H. Custer, Box 98, Center Line, Michigan.

FOR SALE

For Sale—Electric Dehydrating Cabinet, size 9 ft. long x 3 ft. wide x 4 ft. high. Door on end. Equipped with evacuating lines. Complete with controls. Never used. Will accept best offer. Louis J. Lerro Co., Inc., 3127 N. Broad St., Philadelphia 32, Pa.

X13 TO REPLACE CARBON TET FOR USE IN THE SHOP. SEE YOUR LOCAL JOBBER.

WALSH NAMED SERVEL A-C DISTRIBUTOR AT HOUSTON

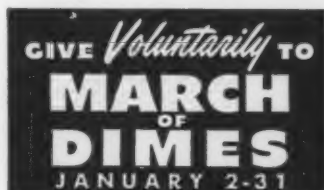
Appointment of J. A. Walsh & Co. of Houston as distributor for Servel air conditioning equipment in 35 Texas counties has been announced by John K. Knighton, vice president in charge of sales of Servel, Inc.

CARRIER DRIVE SEEKS FALL-WINTER BUSINESS

Special advantages in fall and winter purchase of packaged air conditioning units are being featured in a major campaign by Carrier Corp.

Dealers will stress the lower installation costs possible during the off-peak months to encourage buying in advance of the hot weather rush.

Wintertime installation, they will point out, avoids the difficult installation schedules and overtime work which have been necessary during the past few years to meet the heavy volume of summertime sales.



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TEMPERATURE...RELY ON

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Portable Humidity and Temperature Recorder

3" x 5" charts, 10 or 30 hour records. Modern design... handy for small space and difficult locations... built to meet unusual conditions.



BENDIX-FRIEZ

Hygro-dial

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Hand-operated and calibrated to professional standards of accuracy by the maker of the world's finest weather instruments. Handsome, modern case—4" high, 5 1/2" wide, 1 1/2" deep—desk or wall mounting.

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does what no
other tool can do!

AT LAST! AN OPEN-END RATCHET WRENCH—the world's first true universal wrench. Never in the history of refrigeration and air conditioning servicing has any tool been developed to equal the ability of this patented design for connections on tubing, rods, piping, conduit, studs, etc. 64 socket sizes from $\frac{1}{8}$ " to 4". TAC speeds all of your wrenching jobs.



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Adjustable. Remove cap. Before or after installation you can make the exact simple adjustment you want with easy-to-read scale on knob.

Rugged Construction. Silver-soldered joints, stainless-steel valve seat and head assembly — finest construction for years of reliable operation.

Quick to Clean. Large, fine mesh screen easily removable for cleaning — no disconnecting of valve liquid or suction lines.

Compact Size. The Model 204C valve fits in cramped quarters — advantageous for design — handy for field replacement.



NEW  **No. 204C**

**AUTOMATIC EXPANSION VALVE
IS SIMPLEST TO SERVICE ...
FASTEST AND EASIEST TO CLEAN**

Yes, the No. 204C automatic expansion valve is the answer to fast, easy service — especially in cramped quarters where a valve is difficult to reach. *You don't have to disconnect it.* Instead, you merely loosen and remove the easily accessible strainer — clean it and replace it in a jiffy!

With its versatility of use with any refrigerant, its easy-to-set, full adjustment range, and compact size, it's easy to see why the No. 204C is the fastest selling valve on the market today. Write for Bulletin R-9.

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